



*Zootaxa* 4099 (1): 001–125

<http://www.mapress.com/j/zt/>

Copyright © 2016 Magnolia Press

# Monograph

ISSN 1175-5326 (print edition)

**ZOOTAXA**

ISSN 1175-5334 (online edition)

<http://doi.org/10.11646/zootaxa.4099.1.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:B73C1BE1-346A-4C89-86B2-51CDACE92877>

# ZOOTAXA

4099

## ***Dendropaemon* Perty, 1830: taxonomy, systematics and phylogeny of the morphologically most derived phanaeine genus (Coleoptera: Scarabaeidae, Scarabaeinae, Phanaeini)**

FRANÇOIS GÉNIER<sup>1,3</sup> & PATRICK ARNAUD<sup>2</sup>

<sup>1</sup> *Research and Collections, Canadian Museum of Nature, PO Box 3443, Station D, Ottawa, ON K1P 6P4 Canada. E-mail: fgenier@mus-nature.ca*

<sup>2</sup> *22 Sentier des Chèvres, F-91250 Saintry/Seine, France*

<sup>3</sup> *corresponding author*



Magnolia Press  
Auckland, New Zealand

*Accepted by S. Tarasov: 18 Dec. 2015; published: 8 Apr. 2016*

*Licensed under a Creative Commons Attribution License <http://creativecommons.org/licenses/by/3.0>*

FRANÇOIS GÉNIER & PATRICK ARNAUD

***Dendropaemon* Perty, 1830: taxonomy, systematics and phylogeny of the morphologically most derived phanaeine genus (Coleoptera: Scarabaeidae, Scarabaeinae, Phanaeini)**

(*Zootaxa* 4099)

125 pp.; 30 cm.

8 Apr. 2016

ISBN 978-1-77557-925-0 (paperback)

ISBN 978-1-77557-926-7 (Online edition)

FIRST PUBLISHED IN 2016 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: [zootaxa@mapress.com](mailto:zootaxa@mapress.com)

<http://www.mapress.com/j/zt>

© 2016 Magnolia Press

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)



## Table of contents

Abstract .....	4
Resumo .....	4
Introduction .....	5
Material and methods .....	5
Specimens and their deposition .....	5
Terminology, material preparation and format .....	6
Taxonomy .....	6
<i>Dendropaemon</i> Perty, 1830 .....	6
<i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) Edmonds, 1972 .....	8
1. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>bluti</i> Génier & Arnaud, new species .....	8
3. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>compressipennis</i> Génier & Arnaud, new species .....	11
4. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>cribrosus</i> Génier & Arnaud, new species .....	13
5. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>furtadoi</i> Génier & Arnaud, new species .....	14
6. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>hirticollis</i> Olsoufieff, 1924 .....	15
7. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>inflatus</i> Génier & Arnaud, new species .....	17
8. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>pauliani</i> Martínez & Pereira, 1960 .....	18
9. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>pilosissimus</i> Génier & Arnaud, new species .....	20
10. <i>Dendropaemon</i> ( <i>Coprophanaeoides</i> ) <i>renatii</i> Olsoufieff, 1924 .....	21
<i>Dendropaemon</i> ( <i>Dendropaemon</i> ) Perty, 1830 .....	23
11. <i>Dendropaemon</i> ( <i>D.</i> ) <i>aenigmaticus</i> Génier & Arnaud, new species .....	24
12. <i>Dendropaemon</i> ( <i>D.</i> ) <i>amazonicus</i> Génier & Arnaud, new species .....	25
13. <i>Dendropaemon</i> ( <i>D.</i> ) <i>angustulus</i> Génier & Arnaud, new species .....	26
14. <i>Dendropaemon</i> ( <i>D.</i> ) <i>ater</i> (Laporte, 1832) .....	28
15. <i>Dendropaemon</i> ( <i>D.</i> ) <i>flechtmanni</i> Génier & Arnaud, new species .....	30
16. <i>Dendropaemon</i> ( <i>D.</i> ) <i>larseni</i> Génier & Arnaud, new species .....	32
17. <i>Dendropaemon</i> ( <i>D.</i> ) <i>piceus</i> (Perty, 1830) .....	33
18. <i>Dendropaemon</i> ( <i>D.</i> ) <i>telephus</i> Waterhouse, 1891 .....	34
19. <i>Dendropaemon</i> ( <i>D.</i> ) <i>viridis</i> (Perty, 1830) .....	36
<i>Dendropaemon</i> ( <i>Enicotarsus</i> ) Laporte, 1831 .....	38
20. <i>Dendropaemon</i> ( <i>Enicotarsus</i> ) <i>viridipennis</i> (Laporte, 1831) .....	39
<i>Dendropaemon</i> ( <i>Eurypodea</i> ) Klages, 1906 .....	41
21. <i>Dendropaemon</i> ( <i>Eurypodea</i> ) <i>convexus</i> Harold, 1869 .....	43
22. <i>Dendropaemon</i> ( <i>Eurypodea</i> ) <i>fredericki</i> (Klages, 1906) .....	45
<i>Dendropaemon</i> ( <i>Glaphyropaemon</i> ) Génier & Arnaud, new subgenus .....	46
23. <i>Dendropaemon</i> ( <i>Glaphyropaemon</i> ) <i>angustipennis</i> Harold, 1869 .....	46
24. <i>Dendropaemon</i> ( <i>Glaphyropaemon</i> ) <i>bahianus</i> Harold, 1868 .....	49
25. <i>Dendropaemon</i> ( <i>Glaphyropaemon</i> ) <i>inemarginatus</i> Génier & Arnaud, new species .....	52
<i>Dendropaemon</i> ( <i>Nigropaemon</i> ) Génier & Arnaud, new subgenus .....	53
26. <i>Dendropaemon</i> ( <i>Nigropaemon</i> ) <i>nigritulus</i> Génier & Arnaud, new species .....	54
<i>Dendropaemon</i> ( <i>Onthoecus</i> ) Lacordaire, 1856 .....	55
27. <i>Dendropaemon</i> ( <i>Onthoecus</i> ) <i>amyntas</i> Lacordaire, 1856 .....	55
28. <i>Dendropaemon</i> ( <i>Onthoecus</i> ) <i>attalus</i> Génier & Arnaud, nomen novum .....	57
29. <i>Dendropaemon</i> ( <i>Onthoecus</i> ) <i>lydiae</i> Génier & Arnaud, new species .....	59
30. <i>Dendropaemon</i> ( <i>Onthoecus</i> ) <i>moretto</i> Génier & Arnaud, new species .....	61
<i>Dendropaemon</i> ( <i>Paradendropaemon</i> ) Edmonds, 1972 .....	63
31. <i>Dendropaemon</i> ( <i>Paradendropaemon</i> ) <i>ganglbaueri</i> Felsche, 1909 .....	63
32. <i>Dendropaemon</i> ( <i>Paradendropaemon</i> ) <i>vazdemelloi</i> Génier & Arnaud, new species .....	64
<i>Dendropaemon</i> ( <i>Rutilopaemon</i> ) Génier & Arnaud, new subgenus .....	66
33. <i>Dendropaemon</i> ( <i>Rutilopaemon</i> ) <i>refulgens</i> Waterhouse, 1891 .....	66
<i>Dendropaemon</i> ( <i>Streblopaemon</i> ) Génier & Arnaud, new subgenus .....	68
34. <i>Dendropaemon</i> ( <i>Streblopaemon</i> ) <i>fractipes</i> Felsche, 1909 .....	68
<i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) Génier & Arnaud, new subgenus .....	69
35. <i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) <i>fascies</i> Blut, 1939 .....	70
36. <i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) <i>haroldi</i> Olsoufieff, 1924 .....	72
37. <i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) <i>latistriatus</i> Génier & Arnaud, new species .....	73
38. <i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) <i>nitidicollis</i> Olsoufieff, 1924 .....	75
39. <i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) <i>quadratus</i> (Laporte, 1832) .....	77
40. <i>Dendropaemon</i> ( <i>Sulcopaemon</i> ) <i>similis</i> Blut, 1939 .....	80
<i>Dendropaemon</i> ( <i>Titthopaemon</i> ) Génier & Arnaud, new subgenus .....	81
41. <i>Dendropaemon</i> ( <i>Titthopaemon</i> ) <i>denticollis</i> Felsche, 1909 .....	81
Identification key to species of <i>Dendropaemon</i> .....	85
Chave de identificação para as espécies de <i>Dendropaemon</i> .....	86

CHECKLIST AND DISTRIBUTION .....	88
Phylogeny .....	91
Concluding remarks .....	92
Acknowledgements .....	93
Author contributions .....	93
BIBLIOGRAPHY .....	93
Appendix 1. Character list: .....	97

## Abstract

The taxonomy and systematics of the Neotropical genus *Dendropaemon* Perty is revised. The current study recognize 41 species organized into 12 subgenera. The establishment of the subgenera is reflecting the presented phylogenetic analysis. Six subgenera are established from previously available genus group names: *Coprophanaeoides* Edmonds, 1972; *Dendropaemon* Perty, 1830; *Enicotarsus* Laporte, 1831; *Eurypodea* Klages, 1906; *Onthoecus* Lacordaire, 1856; *Paradendropaemon* Edmonds, 1972 and *Tetramereia* Klages, 1907. Six additional subgenera are described as new: *Glaphyropaemon* **n. subg.**; *Nigropaemon* **n. subg.**; *Rutilopaemon* **n. subg.**; *Streblopaemon* **n. subg.**; *Sulcopaemon* **n. subg.**; and *Titthopaemon* **n. subg.** The following 18 species are described as new: *Dendropaemon* (*Coprophanaeoides*) *bluti* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *carinifer* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *compressipennis* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *cribrosus* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *furtadoi* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *inflatus* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *pilosissimus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *aenigmaticus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *amazonicus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *angustulus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *flechtmanni* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *larseni* **n. sp.**; *Dendropaemon* (*Glaphyropaemon*) *inemarginatus* **n. sp.**; *Dendropaemon* (*Nigropaemon*) *nigritulus* **n. sp.**; *Dendropaemon* (*Onthoecus*) *lydiae* **n. sp.**; *Dendropaemon* (*Onthoecus*) *morettoii* **n. sp.**; *Dendropaemon* (*Paradendropaemon*) *vazdemelloi* **n. sp.**; *Dendropaemon* (*Sulcopaemon*) *latistriatus* **n. sp.**. The following nomen novum: *Dendropaemon* (*Onthoecus*) *attalus* **nom. nov.** is created to replace the primary junior homonym *Dendropaemon amyntas* Harold, 1868. Except for *Dendropaemon montei* Pessôa & Lane, 1936, type material of all the species have been examined and lectotypes designated for the following two species: *Dendropaemon fascies* Blut, 1939 and *Dendropaemon lobatus* Waterhouse, 1891. In order to stabilize nomenclature, neotypes were also designated for the following species: *Dendropaemon convexus* Harold, 1869; *Enicotarsus ater* Laporte, 1832; *Enicotarsus quadratus* Laporte, 1932 and; *Enicotarsus viridipennis* Laporte, 1831. Color habitus are presented for each of the valid species.

**Key words:** Coleoptera, Scarabaeidae, Scarabaeinae, Phanaeini

## Resumo

A Taxonomia e a Sistemática do gênero neotropical *Dendropaemon* Perty são revisadas. O presente estudo reconhece 41 espécies organizadas em 12 subgêneros. O estabelecimento dos subgêneros reflete a análise filogenética apresentada. Seis subgêneros são estabelecidos sobre nomes já disponíveis: *Coprophanaeoides* Edmonds, 1972; *Dendropaemon* Perty, 1830; *Enicotarsus* Laporte, 1831; *Eurypodea* Klages, 1906; *Onthoecus* Lacordaire, 1856; *Paradendropaemon* Edmonds, 1972 e *Tetramereia* Klages, 1907. Seis subgêneros adicionais são descritos como novos: *Glaphyropaemon* **n. subg.**; *Nigropaemon* **n. subg.**; *Rutilopaemon* **n. subg.**; *Streblopaemon* **n. subg.**; *Sulcopaemon* **n. subg.** e *Titthopaemon* **n. subg.** Dezoito novas espécies são descritas: *Dendropaemon* (*Coprophanaeoides*) *bluti* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *carinifer* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *compressipennis* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *cribrosus* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *furtadoi* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *inflatus* **n. sp.**; *Dendropaemon* (*Coprophanaeoides*) *pilosissimus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *aenigmaticus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *amazonicus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *angustulus* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *flechtmanni* **n. sp.**; *Dendropaemon* (*Dendropaemon*) *larseni* **n. sp.**; *Dendropaemon* (*Glaphyropaemon*) *inemarginatus* **n. sp.**; *Dendropaemon* (*Nigropaemon*) *nigritulus* **n. sp.**; *Dendropaemon* (*Onthoecus*) *lydiae* **n. sp.**; *Dendropaemon* (*Onthoecus*) *morettoii* **n. sp.**; *Dendropaemon* (*Paradendropaemon*) *vazdemelloi* **n. sp.**; *Dendropaemon* (*Sulcopaemon*) *latistriatus* **n. sp.**. *Dendropaemon* (*Onthoecus*) *attalus* **nom. nov.** é criado para substituir o homônimo primário júnior *Dendropaemon amyntas* Harold, 1868. Exceto por *Dendropaemon montei* Pessôa & Lane, 1936, o material-tipo de todas as espécies foi examinado, e lectótipos designados para *Dendropaemon fascies* Blut, 1939 e *Dendropaemon lobatus* Waterhouse, 1891. Com o objetivo de estabilizar a nomenclatura neótipos foram também designados para *Dendropaemon convexus* Harold, 1869; *Enicotarsus ater* Laporte, 1832; *Enicotarsus quadratus* Laporte, 1932 e *Enicotarsus viridipennis* Laporte, 1831. Fotografias em cores são apresentadas para cada espécie válida

## Introduction

Phanaeini are one of the most studied New World dung beetles groups. Being colorful and large is certainly partly responsible for this. The genus *Dendropaemon* was first revised by d'Olsoufieff (1924) in his review of “Les Phanaeides” (tribe Phanaeini). In 1936, Pessôa and Lane described a single species. Subsequently, Blut (1939) reviewed the genus and described 8 new taxa. Unfortunately, Blut was unable to study types and 7 of his new taxa are now synonyms. The last taxonomic work on the genus was a single species description by Martínez & Pereira in 1960. Edmonds (1972) examined the morphology of the group, described two new subgenera, gave a modern description of the generic group names and provided an identification key for the latter. No attempts have been made since to revise the genus, making it the last group of Phanaeini to be given a modern taxonomic revision. The main objective of this work is to provide an up-to-date systematic frame for the group based on phylogeny. We did not attempt to investigate biology and the reader is referred to Martínez & Clavijo (1990) and Vaz-de-Mello & Génier (2009) for the biological observations on some species of the genus. We, however, compiled the scanty data that are currently known through examined specimens.

The first challenge when starting to work on the group was to gather as much material as possible. Thanks to the contribution of numerous institutions and individuals we were able to gather 922 specimens. Most species of *Dendropaemon* are very rare in collections and are also rarely encountered in the field. As opposed to most other Scarabaeinae, there are only a few records of specimens collected using baited pitfall traps. The most effective collecting method based on the 251 specimen with data is flight interception trap (112 specimens) followed by light trap (102 specimens). The remaining specimens were mostly collected on the ground by hand. Only 13 specimens were collected in pitfall traps baited with dung (bovine, human, pig). It is not clear if they were attracted to the bait or by the humidity released by in the trap. A single individual was collected digging near an *Atta* ant nest. In conclusion, as a whole, *Dendropaemon* are most likely inquiline but their biology remain to be investigated.

Of the 922 specimens studied, 19% of the specimens belong to the species *D. denticollis* Felsche, a species more readily attracted to light. The second most numerous species in collection was *D. angustipennis* Harold with 10% of the specimens followed by *D. viridipennis* (Laporte) with 8% of the specimens. All other species were represented by less than 6% of the specimens, down to a single specimen for 11 species.

## Material and methods

### Specimens and their deposition

A total of 922 adult specimens were examined. The initialisms used in the text were taken from Evenhuis (2007) or generated if not present in The Insects and Spider Collections of the World Website.

AFIC: Adrian Forsyth personal collection, Washington, DC, U.S.A.

AMNH: American Museum of Natural History, New York, NY, U.S.A.; Lee Herman.

ATHC: Alain Thilliez personal collection, Saint-Georges-de-Commiers, France

BCRC: Brett C. Ratcliffe personal collection, Lincoln, NE, U.S.A.

BDGC: Bruce D. Gill personal collection, Ottawa, ON, Canada.

BMNH: The Natural History Museum, London, U.K.; Max Barkley, Malcolm Kerley.

CAS: California Academy of Sciences, San Francisco, CA, U.S.A.; David H. Kavanaugh.

CEMT: Seção de Entomologia da Coleção Zoológica da Universidade Federal de Mato Grosso, Cuiabá, Mato Grosso, Brazil; Fernando Vaz-de-Mello.

CMNC: Canadian Museum of Nature, Gatineau, QC, Canada.

CNC: Canadian National Collection of Insects and Arachnids, Agriculture and Agri-Food Canada, Ottawa, ON, Canada; Pat Bouchard, Serge Laplante.

COBF: Olivier Boily personal collection, Lille, France

CPFA: Patrick Arnaud personal collection, Saintry-sur-Seine, France.

CUIC: Cornell University Insect Collection, Ithaca, NY, U.S.A.; Jason J. Dombroskie.

FGIC: François Génier personal collection, Gatineau, QC, Canada.

FSCA: Florida State Collection of Arthropods, Gainesville, FL, U.S.A.; Paul E. Skelley.

GHCM: Gonzalo Halffter personal collection, Cuatepec, Jalapa, Mexico.

IRSNB: Institut Royal des Sciences Naturelle de Belgique, Brussels, Belgium; Alain Drummont, Pol Limbour.  
 MACN: Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina; Axel Backmann.  
 MEFEIS: Museu de Entomologia da FEIS/UNESP, Ilha Soltera, SP, Brazil; Carlos A.H. Flechtmann.  
 MNHN: Muséum national d'Histoire naturelle, Paris, France; Antoine Mantilleri, Olivier Montreuil.  
 MNHNB: Muséum national d'Histoire naturelle, Brunoy, France; François Feer.  
 MNRJ: Museu Nacional/UFRJ, Rio de Janeiro, RJ, Brazil; Miguel A. Monné B.  
 MTD: Staatliches Museum für Tierkunde, Dresden, Germany; Olaf Jäger.  
 MUSM: Museo de Historia Natural Departamento de Entomología, Lima, Peru; Luis A. Figueroa R, Gerardo Lamas.  
 MZLU: Museum of Zoology, Lund University, Lund, Sweden; Lars Lundqvist.  
 MZSP: Museu de Zoologia da Universidad de São Paulo, SP, Brazil; Carlos Campaner, Carlos José Einicker Lamas.  
 NMPC: Department of Entomology, National Museum, Prague, Czech Republic; Jiří Hájek.  
 OUMNH: Oxford University Museum of Natural History, Oxford, UK; Darren J. Mann.  
 PMOC: Philippe Moretto personal collection, Toulon, France.  
 QCAZ: Museo de Zoología, Pontifica Universidad Católica del Ecuador, Quito, Équateur; Clifford Keil.  
 SMF: Forschungsinstitut Senckenberg, Frankfurt, Germany; Damir Kovac.  
 SPPC: Svatopluk Pokorný, personal collection; Prague, Czech Republic.  
 WDEC: W. David Edmonds personal collection, Marfa, TX, U.S.A.  
 ZMHB: Museum für Naturkunde der Humboldt-Universität, Berlin, Germany; Manfred Uhlig, Fritz Hieke.  
 ZSMC: Zoologische Staatssammlung, Munich, Germany; Michael Balke, Max Kühbänder.

All primary types were studied except for the species *D. montei* Pessôa & Lane, 1936. The taxon is currently considered a synonym of *D. hirticollis* Olsoufieff, 1924 (Pereira & Martínez, 1956) and we keep the current status for this species.

## Terminology, material preparation and format

In the present work, the term edge designate to outermost portion of a structure (e.g. clypeal edge, pronotal edge). The term margin designate the internally delimited portion along the edge. All measurements were rounded to the nearest 0.5 mm. Length is taken in dorsal view from the apex of clypeal teeth to the posterior most portion of the pygidium and width is the maximum width, which in some species is at the pronotal level and in other species at the elytral level. All primary type label data are transcribed verbatim. Each label text is in square bracket ([ ]) and each text line is separated by a slash (/) this is followed by the media description. If not indicated otherwise the label text is printed on white card. All dissected internal sac were cleaned in potassium hydroxide and mounted in the alcohol and water soluble Dimethylhydantoin Formaldehyde Resin (DMHF). Bibliography, descriptions, including measurements and list of material examined has been generated with the Mantis Database version 2.1, (Naskrecki, 2008) with some modifications. In “Nomenclature and taxonomy” sections, the second epithet is valid. Distribution maps were prepared with SimpleMappr (Shorthouse, 2010).

## Taxonomy

### *Dendropaemon* Perty, 1830

*Dendropaemon* Perty 1830, *Delec. Anim. Art. (fasc. 1)*: 38 (original description)  
*Dendropemon*: Agassiz 1846, *Nom. Zool.*: 119 (unjustified emendation)  
*Dendropaemon*: Lacordaire 1856, *Hist. Nat. Ins. III*: 102 (redescription, comment)  
*Dendropaemon*: Burmeister 1861, *Berl. Ent. Zeit.* 5: 56 (mentioned as synonym)  
*Dendropemon*: Harold 1869, *Cat. Col. IV*: 1020 (catalogue)  
*Dendropemon*: Harold 1875, *Stett. Ent. Zeit.* 36: 456 (comment)  
*Dendropaemon*: Lacordaire & Chapuis 1876, *Gen. Col.* 12: 276 (catalogue)  
*Dendropemon*: Harold 1877, *Ann. Mus. Civ. Stor. Nat. Genova* 10: 84 (comment)  
*Dendropaemon*: Péringuey 1901, *Trans. S. Afr. Phil. Soc.* 12: 307 (comment)  
*Dendropemon*: Kolbe 1905, *Zool. Jahrb., Supp.* 8: 531 (mention)



*Dendropaemon*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)  
*Dendropaemon*: Olsoufieff 1924, *Insecta* 13: 121 (monograph)  
*Dendropaemon*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 267 (monograph)  
*Dendropaemon*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 490 (bibliography)  
*Dendropaemon*: Martinez 1944, *Rev. Arg. Ent.* 2: 35 (comment taxonomy)  
*Dendropaemon*: Blackwelder 1944, *U. S. Nat. Mus. Bull.* 185: 210 (checklist)  
*Dendropaemon*: Lange 1947, *Arq. Mus. Paranaense* 6: 314 (mention)  
*Dendropaemon*: Janssens 1954, *Vol. Jub. V. Van Stralen*: 974 (comment taxonomy)  
*Dendropaemon*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 843 (redescription, identification key, comment)  
*Dendropaemon*: Branco 1991, *Ann. Soc. Ent. Fr. (N. S.)* 27: 266 (systematic position)  
*Dendropaemon*: Edmonds 1994, *Nat. Hist. Mus. LA Co., Cont. Sc.* 443: 17 (identification key)  
*Dendropaemon*: Zimmerman 1994, *Australian Weevils* 1: 84 (comment taxonomy)  
*Dendropaemon*: Vitolo 2000, *Rev. Acad. Colomb. Cienc.* 24: 593 (identification key)  
*Dendropaemon*: Escobar 2000, *Mon. Terc. Mil.* 1: 199 (faunistic)  
*Dendropaemon*: Vaz-de-Mello 2000, *Hac. Pray. CYTED*: 186 (faunistic)  
*Dendropaemon*: Philips & Scholtz 2000, *Afr. Ent.* 8: 227 (mention)  
*Dendropaemon*: Arnaud 2002, *Col. Monde* 28: 14 (monograph)  
*Dendropaemon*: Philips et al. 2004, *Insect Syst. Evol.* 35: 43 (phylogeny)  
*Dendropaemon*: Larsen et al. 2006, *Col. Bull.* 60: 320 (biology)  
*Dendropaemon*: Noriega et al. 2008, *Biot. Colomb.* 9: 133 (notes)  
*Dendropaemon*: Price 2009, *Sys. Ent.* 34: 148 (phylogeny)  
*Dendropaemon*: Vaz-de-Mello & Génier 2009, *Col. Bull.* 63: 364 (biology)  
*Dendropaemon*: Gillett et al. 2010, *Insecta Mundi* 0118: 12 (identification key, distribution)

**Diagnosis.** In addition to having a reduced number of tarsal segments on meso and metatibiae, members of the genus *Dendropaemon* are unique among Scarabaeinae in possessing the following synapomorphies: basal and usually hidden portion of the pygidium with an oblique groove on each side of the midline; elytral apex more or less emarginated in line with the distal portion of each groove; abdominal sternites 4–6 with minute punctures and finally, with a more or less developed prosternal spiniform process anteromedially.

**Description.** Phanaeine. **Body.** Small to large (6.0–22.5 mm). **Color.** Varying from entirely black to partially metallic green, reddish, coppery or blue; legs and ventrum usually black or darker in color for species presenting metallic sheen. **Head.** Clypeus always bidentate; clypeofrontal carina always present, sometime reduced low and straight or more or less trilobate in frontal view, never produced into a horn medially. **Pronotum.** Surface varying from flat on disc to more or less evenly convex; always with a more or less developed transverse ridge anteromedially; lateral fossae always present. **Elytra.** More or less parallel sided in dorsal view; striae always well defined; interstriae never strongly convex, usually flat. **Thoracic sterna.** Prosternum usually with a more or less developed spiniform process anteromedially. **Legs.** Variable in shape, usually stout and more or less rectangular in medial cross section, slender and more or less rounded in cross section only in the subgenus *Paradendropaemon*; meso and metatarsi always less than five segmented, varying from two to four segmented. **Abdominal sternites.** More or less reduced along midline; sternites 4–6 usually with minute punctures. **Sexual dimorphism.** Reduced compare to other Phanaeini. Usually restricted to the shape of the cephalic and pronotal carina, in some species the first and second metatarsomere are slightly more slender in male.

**Remarks.** The spelling of the genus *Dendropaemon* has been emended to *Dendropemon* and/or considered neutral by some authors (e.g. Agassiz, 1846; Harold, 1869; Gillet, 1911; Blackwelder, 1944). The name *Dendropaemon* can be split in two parts: *dendro* “(to) trees” and *paemon*, more specifically *pemon* “noxious” hence meaning “harmful to trees”. Perty, who gives the etymology of his new genus, preferred “paemon” to “pemon”, perhaps to suggest that the Latin “ae” would represent the Greek eta (ή) more accurately. The Greek word *pemon* (πήμων) is an adjective and keep this Latinized spelling for the three genders, masculine, feminine and neutral. The word *δενδροπήμων* is also a Greek adjective. Article 30.1.4.2 of the I.C.Z.N. state that “a genus-group name which is or ends in a word of common or variable gender (masculine or feminine) is to be treated as masculine unless its author, when establishing the name, stated that it is feminine or treated it as feminine in combination with an adjectival species-group name.” Perty, when describing *D. piceus* and *D. viridis*, clearly used the masculine form for *D. piceus* and *D. viridis* can be masculine or feminine therefore *Dendropaemon* should be treated as masculine and the emendation *Dendropemon* is unjustified. There is also a plant genus *Dendropemon* (Blume) Rchb. (Loranthaceae) and it has been treated as masculine by the first reviewer (Y. Cambefort, pers. comm.).

Harold's catalogue (1869) list *Euryderus* Hope and *Ryssochaeton* Gray (*in litt.*) as synonyms of *Dendropaemon*. This information was most likely transcribed from Isis von Oken (Oken, 1833: 1172). Despite efforts, we were unable to find the references where these names were used. We consider both of them *in litteris* and exclude them from the genus synonymy.

Perty's work was published in fascicules between the years 1830–1833 (Blackwelder, 1957; Evenhuis, 1997; Scherer, 1983). For the year 1833, the plates (Pls. 25–30) and the text (pp. 125–224) were published separately and the plates were published in September, a few months before the text which was published in December. Species descriptions are therefore validated on the plates. Evidences point out to a similar occurrence of the plates (Pls. 1–12) being published before the printed descriptions (pp. 1–44) for the installments published in 1830. The plate where *D. piceus* and *D. viridis* were published state *Eurysternus* as the genus, suggesting that Perty wrote the genus description after the plates were published. For this reason, we use the plates as the primary citation for Perty's species descriptions and the text for the generic description in the present work.

The name *Dendropaemon* Perty, 1830 was emended to *Dendropemon* by Agassiz, 1846: 119. *Dendropemon* Schoenherr, 1839 is a genus of Curculionidae, because *Dendropaemon* is an unjustified emendation there is no homonymy between *Dendropaemon* and *Dendropemon* as they differ by one letter (ICZN art. 56.2).

### ***Dendropaemon* (*Coprophanaeoides*) Edmonds, 1972**

*Dendropaemon* (*Coprophanaeoides*) Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (original description)

*Dendropaemon* (*Coprophanaeoides*): Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon* (*Coprophanaeoides*): Arnaud 2002, *Col. Monde.* 28: 15 (monograph)

*Dendropaemon* (*Coprophanaeoides*): Vaz-de-Mello & Génier 2009, *Col. Bull.* 63: 364 (biology)

**Type species:** *Dendropaemon renatii* Olsoufieff, 1924; original designation.

**Diagnosis.** Size moderate. Habitus rectangular in dorsal view, parallel sided; with metallic sheen on head, pronotum and elytra. Body moderately compressed dorsoventrally. Clypeal edge acutely angularly emarginate on external side of each clypeal tooth; clypeal teeth acutely angular to ogival. Pronotum with some fine to coarse punctures on disc; anterior margin flat lateral to eyes; lateral fossae bordered laterally by a blunt carina and anteriorly by a blunt tubercle. Elytral base marginate. Meso and metatarsi similar in shape, three segmented, first segment approximately as long as wide at apex, last segment spiniformly produced internally, with setae apically.

#### **1. *Dendropaemon* (*Coprophanaeoides*) *bluti* Génier & Arnaud, new species**

(Figs. 1, 110, 156)

**Type locality.** Culiseu, Quellgebiet des Xingu, Brasilien.

**Diagnosis.** The acutely notched external side of each clypeal tooth will place this species in *Coprophanaeoides*. Within *Coprophanaeoides*, the completely glabrous pronotum will separate it from *D. carinifer*, *D. compressipennis*, *D. cribrosus*, *D. furtadoi*, *D. hirticollis* and *D. pilosissimus*. The distinct pronotal posterior edge will separate it from *D. inemarginatus*. Its smaller size and well defined elytral striae will separate it from *D. inflatus* and finally the smaller eyes and less produced anterior pronotal angles will separate it from *D. renatii*.

**Description.** Female holotype (Fig. 1). **Body.** Body moderately large, length 12.5 mm, maximum width 7.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface black, glossy, with green metallic sheen; head with green metallic sheen on genae and frons; pronotum with green metallic sheen except disc and irregular area laterally; elytra with uniform green metallic sheen; ventrum with faint greenish metallic sheen; pygidium with green metallic sheen; legs with coppery and greenish metallic sheen on femora and tibiae. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth ogival; clypeal median emargination narrowly v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with ill-defined rugulae and minute tubercles laterally, smooth internally, lacking distinct transverse carina, simply convex; clypeofrontal carina low,

more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 4.7. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum smooth basally, with transverse rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a transverse anteriorly arcuate carina; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered laterally by a blunt carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally and fine apically, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine and well-defined, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posteroventral margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anteroventral edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with rugose irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anteroventral edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, three-segmented, first segment short, approximately as long as wide at apex. Metafemur broadly oval in anterior view, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with an irregular fine sulcus medially. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, glossy between punctures. Metatarsus three-segmented (Fig. 110), first segment moderately elongate, approximately two times as long as wide at apex, with anteroventral carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium minutely punctate on disc.

**Measurements** (1 female). Length: 12.5 mm.

**Primary type data.** Holotype female (ZMHB): [♀]; [Campos] handwritten, green card; [1.-10.9.1887/ 2. Xingu-Expd.] handwritten; [Brasilien/ Quellgebiet d. Xingu,/ Culiseu/Ehrenreiche S.] green card; [Dendropaemon/ renatii Olsuf.♀/ Xingu, Blut det. 1938] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016732]; HOLOTYPE/ *Dendropaemon/ bluti* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** Primary type only.

**Etymology.** A patronym in honor of Heinrich Blut who published on the genus in 1939.

**Natural history.** Unknown.

**Remarks.** Male and variation unknown.

Blut misidentified this species as *D. renatii* and redescribed *D. renatii* as *D. refulgens olsufieffi*.

## 2. *Dendropaemon (Coprophanæoides) carinifer* Génier & Arnaud, new species

(Figs. 2, 42–43, 111, 156)

**Type locality.** MA-10, Pedrinhas, Maranhão, Brazil.

**Diagnosis.** The long elytral pilosity combined with the sharply carinate lateral edge of the pronotal lateral depressions will separate *D. carinifer* from most other in the genus. The much less pilose dorsum, especially the glabrous eighth elytral interval will separate it from *D. pilosissimus* and the simply broadly arcuate clypeal edge will distinguish it from *D. furtadoi*. Finally, it can be separated from its sibling species *D. cribrus* by the

distinctly less punctate pronotal disc. In *D. carinifer* there is at most 25 (usually 10 to 12) non confluent large setiferous punctures on disc as in *D. cribrosus* there is at least twice that many confluent punctures. Additionally, the clypeal pilosity is much reduced in *D. carinifer* and in most cases completely absent, when present, only few setae are set on each side of midline in front of the clypeofrontal tubercle. In *D. cribrosus*, the pilosity is present on most of the surface and the surface anterior to the clypeofrontal tubercle present minute setiferous granules as opposed to large transverse rugulae similar to the remaining surface in *D. carinifer*.

**Description.** Male holotype (Fig. 2). **Body.** Body moderately large, length 11.5 mm, maximum width 6.5 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen; elytra with uniform green metallic sheen; ventrum with faint greenish metallic sheen; pygidium with green metallic sheen; legs with coppery and greenish metallic sheen on femora and tibiae. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth acutely triangular; clypeal median emargination v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt irregular tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes large in dorsal view, interocular ratio 3.1.

**Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum minutely punctate basally with some scattered large setiferous puncture medially, with dense squamose punctation anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a slightly tri-sinuous carina notched medially; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered laterally by a sharp carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined and crenulate, with several long setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally and fine apically, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine, well-defined and setiferous, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate and with few larger setiferous punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with an irregular fine sulcus medially. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented (Fig. 111), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, narrowly glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 42–43). Parameres simply rounded apically in dorsal view; surface smooth, glossy apically.

**Measurements** (10 males, 12 females). Length: male 11.0–12.5 (11.7±.5), female 10.5–13.5 (12.2±0.9) mm.



**Primary type data.** Holotype male (CEMT): [02/IX/1987/ BR-MA-Pedrinhas/ armadilha luminosa/ Ma-10/ Bergmann, E. col.] handwritten; WORLD/ SCARAB./ DATABASE/ WSD00017508]; [HOLOTYPE/ *Dendropaemon/ carinifer* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** **BRAZIL:** BAHIA, Cândido Sales, (15°30'18"S, 41°14'20"W), xii.2012, coll. P. Wagner—1 female (paratype) (CEMT); CEARÁ, Chapada do Araripe, (7°20'S, 40°0'W), 5.iv.1962, coll. D. Zajciw—3 females (incl. 3 paratypes) (MNRJ); Parque Botânico do Ceará, Caucaia, (3°42'43"S, 38°38'45"W), 27.ii.2006, coll. F.A. Nunes—2 males (incl. 2 paratypes) (MEFEIS); MARANHÃO, Base da Geraldina, Parque Estadual Mirador, Mirador, (6°22.2'S, 44°21.8'W), 20–24.xii.2006, coll. F. Limeira-de-Oliveira—1 female (paratype) (CEMT); same locality, 20–22.iv.2007, coll. F. Limeira-de-Oliveira—1 female (paratype) (CEMT); same locality, 22.ii.–1.iii.2009, coll. M.B. Aguiar-Neto & J.A. Holanda—1 male (paratype) (CPFA); same locality, 30.vii.–6.viii.2011, coll. F. Limeira-de-Oliveira, T.T.A. Silva & A.A. Santos—1 female (paratype) (CEMT); Base do Mosquito, Parque Estadual Mirador, Mirador, 4–8.ii.2011, coll. F. Limeira-de-Oliveira—1 female (paratype) (CEMT); Pedrinhas, (2°37'25"S, 44°13'28"W), 11.iii.1987, coll. E.C. Bergmann—1 male (paratype) (MEFEIS); same locality, 2.ix.1987, coll. E. Bergmann—1 male (holotype) (CEMT); Pedrinhas, Isla São Luís, (2°37'25"S, 44°13'28"W), 20.vii.1984, coll. E.C. Bergmann—1 male (paratype) (CEMT); same locality, 25.vii.1984, coll. E.C. Bergmann—1 female allotype (MEFEIS); same locality, 28.viii.1984, coll. E.C. Bergmann—1 female (paratype) (MEFEIS); same locality, 7.v.1987, coll. E.C. Bergmann—1 male (paratype) (CEMT); Posto Avançado do Mel, Parque Estadual Mirador, Mirador, (6°43'50"S, 44°58'59"W), 2–8.iv.2011, coll. F. Limeira-de-Oliveira, G.A. Reis & M.S. Oliveira—1 male (paratype) (CEMT); same locality, 30–31.v.2011, coll. F. Limeira-de-Oliveira, A.A. Santos & T.T.A. Silva—2 females, 4 males (incl. 6 paratypes) (CEMT); Reserva Ecológica do Inhamum, Caxias, (4°52'S, 43°22'W), 5–7.vi.2009, coll. E.A. Barbosa & M.B. Aguiar-Neto—1 female (paratype) (CEMT).

**Etymology.** *Carinifer*, an adjective relating to the sharply carinate lateral edge of the pronotal lateral depressions.

**Natural history.** Half of the specimens were collected using black light traps. Two specimens were collected in closed tree forest (mata tabuleiro) and two others in mangrove areas. A single specimen was collected in a pitfall trap baited with decaying fish in a mangrove area.

**Remarks.** Slight variation aside the extent of the black marking on the pronotum. Some individuals only have the marginal area with green metallic sheen. A female present some coppery sheen along the median longitudinal pronotal sulcus. Females can be separated from males by their slightly wider anteromedian pronotal carina which lack the medially notched transverse tubercle and the more widely glabrous sternites 4–6. Two female specimens from Chapada de Arripe (Ceará) have wider and straighter carina, in these specimens the edges of the anterior pronotal carina in line with the lateral edge of the eyes.

### 3. *Dendropaemon (Coprophanaeoides) compressipennis* Génier & Arnaud, new species (Figs. 3, 44–45, 156)

**Type locality.** Três Lagoas, Mato Grosso do Sul, Brasil.

**Diagnosis.** The acutely notched external side of each clypeal tooth will place this species in *Coprophanaeoides*. Within *Coprophanaeoides*, the lack of basal elytral margin will separate it from all other species except its sister species *D. hirticollis* from which it differs in having a much more dorsoventrally compressed body and in possessing a well-defined metasternal v-shaped ridge.

**Description.** Male holotype (Fig. 3). **Body.** Body moderately large, length 11.5 mm, maximum width 6.5 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen; elytra with uniform green metallic sheen; ventrum with faint greenish metallic sheen; pygidium with green metallic sheen; legs with green metallic sheen. **Head.** Clypeus broadly arcuate laterally, straight on a short distance laterally to clypeal teeth, anterior portion upturned; clypeal teeth acutely triangular; clypeal median emargination v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small irregular tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina low, more than 6 times wider than

high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes moderately large in dorsal view, interocular ratio 3.5. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.7; disc of pronotum minutely punctate basally with some scattered large setiferous puncture medially, with dense squamose punctation anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a fine straight carina; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, simple; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined laterally, crenulate, with few long setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae flat, minutely punctate and with few larger setiferous punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, with 1–3 unaligned rows of setae medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 44–45). Parameres simply rounded apically in dorsal view; surface smooth, glossy apically.

**Measurements** (2 males, 2 females). Length: male 11.5–13.0 (12.3±1.1), female 13.5–14.0 (13.8±0.4) mm.

**Primary type data.** Holotype male (MEFEIS): [12/XI/1993/ BR-MS-Três Laogas (sic)/ International Paper/ Horto Rio Verde/ black light flight intercept trap/ cerrado stand/ Flechtmann, C.A.H. col]; [C1177/ 12/10/93/ vlc] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD0017505]; [HOLOTYPE/ *Dendropaemon compressipennis* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** **BRAZIL:** GOIÁS, Parque Nacional das Emas [1], Mineiros, elev. 852 m (17°54'45"S, 52°59'20"W), 15.iii.2011, coll. M.F. Souza—1 male (paratype) (CEMT); Parque Nacional das Emas [2], Mineiros, elev. 852 m (18°4'11.5"S, 52°55'17"W), 15.iii.2011, coll. M.F. Souza—1 female (paratype) (CEMT); Rio Verde, elev. 400 m (17°47'34"S, 50°55'11"W), xii.1970, coll. Humelgen—1 female (paratype) (CPFA); MATO GROSSO DO SUL, Horto Barra do Moeda, International Paper, Três Lagoas, (21°0'S, 51°47'W), 14.xii.1993, coll. C.A.H. Flechtmann—1 female allotype (MEFEIS); Horto Barra do Moeda, Três Lagoas Agroflorestal, Três Lagoas, (21°0'S, 51°47'W), 26.x.1993, coll. C.A.H. Flechtmann—1 female (paratype) (CEMT); Horto Rio Verde, International Paper, Três Lagoas, (20°55'21"S, 52°8'21"W), 12.xi.1993, coll. C.A.H. Flechtmann—1 male (holotype) (MEFEIS).

**Etymology.** An adjective referring to the extremely flat dorsum of this species.

**Natural history.** Two specimens were collected using a black light trap set either in a cerrado-*Eucalyptus* ecotone or in cerrado stand.

**Remarks.** Females differs in having a slightly wider anterior pronotal carina and by their medially glabrous

sternites 1–4. Variation, little aside the extent of green metallic sheen and number of fine setiferous punctures on pronotum. The female specimen from Goiás (P.N. Emas) present a larger flat pronotal surface and the anterior pronotal carina is wider, set closer to the anterior edge and atrophied medially. However, a male from the same locality collected the same day matches the male holotype suggesting that this variation is best considered intraspecific.

#### 4. *Dendropaemon (Coprophanaeoides) cribrosus* Génier & Arnaud, new species

(Figs. 4, 46–47, 156)

**Type locality.** Ubajara (03°50'S 40°56'W, 820m), Ceara, Brasil.

**Diagnosis.** Differs from nearly all other species in the genus by its long elytral pilosity combined with the sharply carinate lateral edge of the pronotal lateral depressions. The much less pilose dorsum, especially the nearly glabrous eighth elytral interval will separate *D. cribrosus* from *D. pilosissimus* and the simply broadly arcuate clypeal edge will distinguish it from *D. furtadoi*. See diagnosis under *D. carinifer* for characters separating it from its sister species.

**Description.** Male holotype (Fig. 4). **Body.** Body moderately large, length 13.0 mm, maximum width 7.0 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except disc and irregular area laterally; elytra with uniform green metallic sheen; ventrum with faint greenish metallic sheen; pygidium with green metallic sheen; legs with coppery and greenish metallic sheen on femora and tibiae. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth acutely triangular; clypeal median emargination v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae anteriorly and small setiferous tubercles posteriorly; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small setiferous tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge slightly trilobate in frontal view; eyes large in dorsal view, interocular ratio 3.8. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate basally with large confluent setiferous puncture medially changing into dense squamose and setiferous rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a slightly tri-sinuous carina notched medially; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered laterally by a sharp carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined and crenulate, with several long setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally and fine apically, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine, well-defined and setiferous, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate and with few larger setiferous punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and

lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, narrowly glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 46–47). Parameres simply rounded apically in dorsal view; surface smooth, glossy apically.

**Measurements** (4 males, 6 females). Length: male 11.0–13.0 (12.3±0.9), female 12.5–13.5 (13.1±0.4) mm.

**Primary type data.** Holotype male (CPFA): [BRASIL: CEARA/ Ubajara, 820m/ 03°50'S 40°56'W/ 1.1995, Miglioli, forêt/ primaire, piège lumineux]; [WORLD/ SCARAB./ DATABASE/ WSD00016742]; [HOLOTYPE/ *Dendropaemon/ cribrosus* n.sp./ Génier & Arnaud, 2014].

**Material examined.** BRAZIL: CEARÁ, Ubajara, elev. 820 m (3°50'S, 40°56'W), i.1995, coll. Miglioli—6 females, 4 males (incl. holotype, 8 paratypes) (CPFA, PMOC).

**Etymology.** *Cribrosus*, an adjective relating to the more heavily punctate pronotal disc.

**Natural history.** All known specimens were collected at light traps.

**Remarks.** Females differs in lacking the media tubercle of the pronotal carina and by their more widely medially glabrous sternites 1–4. Variation, little aside size and the extent of green metallic sheen on head and pronotum.

## 5. *Dendropaemon (Coprophanaeoides) furtadoi* Génier & Arnaud, new species

(Figs. 5, 48–49, 156)

**Type locality.** Diamantino, Mato Grosso, Brasil.

**Diagnosis.** Differs from nearly all other species in the genus by its long elytral pilosity combined with the sharply carinate lateral edge of the pronotal lateral depressions. The much less pilose dorsum, especially the nearly glabrous eighth elytral interval will separate *D. furtadoi* from *D. pilosissimus* and the much less heavily punctate pronotal disc will separate it from *D. carinifer*. From its sister species, *D. cribrosus*, the straight clypeal edge on each side of the clypeal teeth combined with the distinctly anteriorly convergent pronotal lateral edges and less defined elytral striae will set it apart.

**Description.** Male holotype (Fig. 5). **Body.** Body large, length 15.0 mm, maximum width 8.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except for anteromedian carina, on anterior portion of disc and surface adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum with faint greenish and coppery metallic sheen; pygidium with green metallic sheen; legs with coppery and greenish metallic sheen on femora and tibiae. **Head.** Clypeus gena arcuate, clypeus straight between clypeogenal junction and lateral emargination of clypeal teeth, anterior portion upturned; clypeal teeth acutely triangular; clypeal median emargination v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae anteriorly and small setiferous tubercles posteriorly; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small setiferous tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly trilobate in frontal view; eyes large in dorsal view, interocular ratio 4.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum minutely punctate basally with large confluent setiferous puncture medially changing into dense squamose and setiferous rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin only slightly wider and flat lateral to eye; anterior portion with a tri-sinuous carina, carina produced into a tubercle medially; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered



laterally by a sharp carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined and crenulate, with several long setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally, narrower and ill-defined on posterior half, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine, well-defined and setiferous, adjacent stria edge feebly encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate and with few larger setiferous punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, narrowly glabrous on segment 4 and with a single row of setae medially on segments 5–6; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 48–49). Parameres simply rounded apically in dorsal view; surface smooth, glossy apically.

**Measurements** (1 male). Length: 15.0 mm.

**Primary type data.** Holotype male (CEMT): [BRASIL: MT/ Diamantino/ X.1984/ E. Furtado]; [WORLD/ SCARAB./ DATABASE/ WSD00016761]; [HOLOTYPE/ Dendropaemon/ furtadoi n.sp./ Génier & Arnaud, 2014].

**Material examined.** Primary type only.

**Etymology.** *Furtadoi*, a patronym in honor of Eurides Furtado of Diamantino (Mato Grosso) who was very hospitable during a visit of one of the author (FG) and also the collector of the only known specimen of this species.

**Natural history.** Unknown.

**Remarks.** Female and variation unknown.

In addition to the characters mentioned in the diagnosis, this species also differs in having the lateral pronotal fossae bordered anteriorly by a much larger tubercles and the posterior pronotal margin is twice as wide in posterior view as in *D. cribrus*. Because a single male specimen of this species is known it is difficult to assess if this is due to the allometric scaling.

## 6. *Dendropaemon (Coprophanaeoides) hirticollis* Olsoufieff, 1924 (Figs. 6, 50–51, 134, 156)

*Dendropaemon hirticollis* Olsoufieff 1924, *Insecta* 13: 128 (original description)

*Dendropaemon hirticollis*: Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 90 (identification key, comment)

*Dendropaemon monte* Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 90 (original description)

*Dendropaemon hirticollis*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 273 (monograph)

*Dendropaemon hirticollis*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 491 (identification key, comment)

*Dendropaemon montei*: Pessôa & Lane **1941**, *Arq. Zool. S. Paulo* 2: 491 (identification key, redescription)  
*Dendropemon hirticollis*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropemon montei*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropemon hirticollis*: Pereira & Martínez **1956**, *Rev. Brasil. Ent.* 5: 237 (comment taxonomy)  
*Dendropemon montei*: Pereira & Martínez **1956**, *Rev. Brasil. Ent.* 5: 237 (synonymy)  
*Dendropemon hirticollis*: Pereira & Martínez **1960**, *Rev. Brasil. Ent.* 9: 55 (comment taxonomy)  
*Dendropaemon montei*: Pereira & Martínez **1960**, *Rev. Brasil. Ent.* 9: 55 (synonymy)  
*Dendropaemon (Coprophanæoides) hirticollis*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)  
*Dendropaemon hirticollis*: Arnaud **1982**, *Rev. Fr. Ent. (N.S.)* 4: 117 (notes)  
*Dendropaemon hirticollis*: Martínez & Clavijo **1990**, *Bol. Ent. Ven. N.S.* 5: 155 (biology)  
*Dendropaemon hirticollis*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon (Coprophanæoides) hirticollis*: Arnaud **2002**, *Col. Monde* 28: 15 (monograph)

**Type locality.** No type locality.

**Diagnosis.** The acutely notched external side of each clypeal tooth will place this species in *Coprophanæoides*. Within *Coprophanæoides*, the lack of basal elytral margin will separate it from all other species except its sister species *D. compressipennis* from which it differs in having a less dorsoventrally compressed body and in lacking a well-defined metasternal v-shaped ridge.

**Description.** Female holotype (Fig. 6). **Body.** Body moderately large, length 13.0 mm, maximum width 7.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface black, glossy, with green metallic sheen; head with green metallic sheen on genae and frons; pronotum with green metallic sheen except for anteromedian carina, on anterior portion of disc and surface adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum with faint greenish and coppery metallic sheen; pygidium with green metallic sheen; legs with coppery and greenish metallic sheen on femora and tibiae. **Head.** Clypeus broadly arcuate laterally, straight on a short distance laterally to clypeal teeth, anterior portion upturned; clypeal teeth acutely triangular; clypeal median emargination narrowly v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small irregular tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes large in dorsal view, interocular ratio 3.5.

**Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.7; disc of pronotum minutely punctate with some scattered large setiferous puncture medially and irregular setiferous rough punctation anterolaterally, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a simple anteriorly arcuate carina; anterior angles surface with rough setiferous punctures, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, simple; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined laterally, crenulate, with few long setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine, setiferous and scattered, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate and with few larger setiferous punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge absent. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thin, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less flat, bordered anteriorly and posteriorly by an almost complete setal row. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur

internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, narrowly glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium minutely punctate on disc.

**Measurements** (1 male, 7 females). Length: male 15.0, female 13.0–15.0 (13.6±0.7) mm.

**Primary type data** (Fig. 134). Holotype female (MNHN): [Collection/ Mniszech]; [Dendrop. hirticollis sp. n./ det. G. OLSOUFIEFF] partly handwritten; [Dendropaemon ♀/ hirticollis Ols./ HOLOTYPE/ P. Arnaud DET 1982] partly handwritten, red border; [WORLD/ SCARAB./ DATABASE/ WSD00016487]; [Dendropaemon ♀/ hirticollis/ Olsoufieff, 1924/ vid. Génier & Arnaud, 2009]

**Material examined.** **ARGENTINA:** MISIONES, Departamento Concepción, Santa María, (27°54'S, 55°24'W), v.1960, coll. M.J. Viana—1 male (BDGC); same locality, xi.1958, coll. M.J. Viana—1 female (CMNC); same locality, xii.1948, coll. M.J. Viana—1 female (CMNC); **BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 female (ZMHB); GOIÁS, Fazenda Monjolinho, Corumbá, (15°55'S, 48°48'W), xi.1945, coll. Barreto—1 female (WDEC); MINAS GERAIS, Cupí, 3.vii.1982, coll. P. Moret—1 female (CPFA); Santa Bárbara, (19°57'32"S, 43°24'54"W), 8.x.1993, coll. Zanuncio—1 female (CEMT); [unspecified locality], [no date], coll. [anonymous]—1 female (BMNH); [NO DATA]: -, coll. [anonymous]—1 female (holotype) (MNHN).

**Natural history.** Martínez & Clavijo (1990) report that M.J. Viana caught numerous specimens of *D. hirticollis* leaving a termite nest during a rain in Misiones, Argentina. A specimen from Minas Gerais was collected in a spider web under a street light.

**Remarks.** A single male of this species is known and differs from the females in having the anterior pronotal carina wider and somewhat atrophied medially in addition to having the abdominal sternites 5–7 almost completely setose. The parameres are simply rounded in dorsal view and the surface finely irregular apically (Figs. 50–51). Variation, as usual, the extent of the green metallic markings on head and pronotum varies. The Argentinean specimens differs in having the anterolateral surface of pronotum more simply convex and the pronotal disc less heavily sculptured between setose punctures as well as having the elytral apex more evenly convex with striae less impressed. For the moment this variation will be considered intraspecific.

## 7. *Dendropaemon (Coprophanaeoides) inflatus* Génier & Arnaud, new species

(Fig. 7, 156)

**Type locality.** Rio Verde (400m), Goiás, Brasil

**Diagnosis.** The acutely notched external side of each clypeal tooth will place this species in *Coprophanaeoides*. Within *Coprophanaeoides*, the straight clypeal edge between clypeogenal junction and lateral emargination of clypeal teeth combined with the ill-defined elytral striae will separate it from all other species.

**Description.** Female holotype (Fig. 7). **Body.** Body moderately large, length 18.0 mm, maximum width 9.5 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head with green and coppery metallic sheen on posterior portion of clypeus, genae and frons; pronotum with green metallic sheen along margins and most of anterolateral declivities; elytra with faint greenish metallic sheen; ventrum with faint greenish and coppery metallic sheen; pygidium with green metallic sheen; legs with faint coppery sheen. **Head.** Clypeus gena arcuate, clypeus straight between clypeogenal junction and lateral emargination of clypeal teeth, anterior portion upturned; clypeal teeth ogival; clypeal median emargination narrowly v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally on anterior half; genal surface with fine tubercles anteriorly and minutely punctate posteriorly, lacking distinct transverse carina, flat; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular

ratio 4.2. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate basally, puncture becoming fine anteriorly and changing into fine isolated rugose tubercles on declivities, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin only slightly wider and flat lateral to eye; anterior portion with a simple anteriorly arcuate carina; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae ill-defined, bordered laterally by a sharp carina and anteriorly by a rather acute tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base distinctly marginate; elytral striae 1–4 fine and ill-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with rugose irregular punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment short, approximately as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, with moderately dense minute punctures on a glossy surface, metatibial posterior surface flat between longitudinal row of setae and lateral edge, glossy between punctures. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium minutely punctate on disc.

**Measurements** (1 female). Length: 18.0 mm.

**Primary type data.** Holotype male (CPFA): [BRASIL MG (in error)/ Rio Verde 400 m/ XII.1970/ Humelgen leg.]; [WORLD/ SCARAB./ DATABASE/ WSD00016733]; [HOLOTYPE/ *Dendropaemon inflatus* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** Primary type only.

**Etymology.** *Inflatus*, a Latin adjective pertaining to the puffed up overall aspect of the body of this species.

**Natural history.** Unknown.

**Remarks.** Male and variation unknown.

## 8. *Dendropaemon (Coprophanæoides) pauliani* Martínez & Pereira, 1960

(Figs. 8, 135, 156)

*Dendropaemon pauliani* Martínez & Pereira 1960, *Rev. Soc. Ent. Argentina* 22: 81 (original description)

*Dendropaemon pauliani*: Hamel-Leigue et al. 2009, *Kempffiana* 5: 49 (faunistic)

**Type locality.** Parapeti, provincia Cordillera, departamento de Santa Cruz, Bolivia.

**Diagnosis.** The acutely notched external side of each clypeal tooth will place this species in *Coprophanæoides*. Within *Coprophanæoides*, the glabrous clypeus and pronotum will separate it from all other species except *D. bluti*, which has smaller eyes, *D. inflatus* which has atrophied elytral striae and *D. renatii* which is known from Brazil.



**Description.** Female holotype (Fig. 8). **Body.** Body moderately large, length 12.0 mm, maximum width 7.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, with blue and green metallic sheen; head with faint bluish and greenish metallic sheen on posterior portion of clypeus, genae and frons; pronotum with faint bluish and greenish metallic sheen on anterior and lateral declivities; elytra with faint bluish metallic sheen; ventrum with faint greenish and coppery metallic sheen; pygidium with faint bluish metallic sheen; legs light to dark brown, with faint greenish metallic sheen. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth ogival; clypeal median emargination v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine sharp tubercle and rugulae on disc, lacking distinct transverse carina, simply convex; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge broadly arcuate in frontal view; eyes moderately large in dorsal view, interocular ratio 3.3. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum smooth basally, with transverse rugulae anteriorly, with a fine ill-defined longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a simple anteriorly arcuate carina with lateral extremities connecting to anterior margin; anterior angles surface with more or less rough and irregular fine tubercles, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered laterally by a sharp carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae absent; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally and fine apically, evenly impressed throughout, elytral striae 5 similar to 4 on disc, strial punctures minute, adjacent strial edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae moderately convex, minutely punctate and with some additional ill-defined irregular punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured; posterior surface with some ill-defined rugose punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium minutely punctate on disc.

**Measurements** (1 female). Length: 12.0 mm.

**Primary type data** (Fig. 135). Holotype female (MACN): [Ene.-959/ BOLIVIA/ D° Sta-Cruz/ Pcia Cordillera/ PARAPETI/ coll. Martínez] handwritten; [Dendropaemon/ n.sp./ A. MARTINEZ-DET 1959] partly handwritten; [HOLOTYPUS] red card; [Dendropaemon/ pauliani/ sp.n./ A.MARTINEZ DET 1960] partly handwritten, red card; [WORLD/ SCARAB./ DATABASE/ WSD00016734]; Dendropaemon/ pauliani ♀/ Martinez, 1960/ vid. F. Génier, 2014] partly handwritten.

**Material examined.** Primary type only.

**Natural history.** The only known specimen of this species was collected at night in “typical chaco boreal”

forest as it was attracted to artificial light. Martinez (1960) describes the flight pattern as being similar to those of Bolboceratinae (Geotrupidae) of the genera *Athyreus* MacLeay, *Bolborhinum* Boucomont and *Zefevazia* Martínez.

**Remarks.** Male and variation unknown.

At first we considered the only specimen known of the species as an odd small female of *D. renatii*. However, after closer examination, we prefer to maintain *D. pauliani* as valid. The peculiar configuration of the pronotal anterior carina (see description) was believed to be the minor configuration, but similar sized female of *D. renatii* are similar to well-developed specimens and have the carina set away from the anterior margin. In addition to this character, the flat anterior femur (slightly but distinctly convex in *D. renatii*) and absence of pronotal posterior fossae seems to further exclude it from *D. renatii*. In addition, the body seems to be slightly more compressed dorsoventrally; the last tarsal segment appears simply spiniform and lack the internal spiniform projection beyond apical setae in the only known specimen, this however might be due to abrasion. Finally, the species is seemingly restricted to the Bolivian dry Chaco.

### 9. *Dendropaemon (Coprophanaeoides) pilosissimus* Génier & Arnaud, new species

(Fig. 9, 156)

**Type locality.** Parque Nacional Cerro Corá, Departamento Amambay, Paraguay.

**Diagnosis.** The three-segmented meso- and metatarsi combined with the acutely notched external side of each clypeal tooth will place this species in *Coprophanaeoides*. Within *Coprophanaeoides*, the completely and rather uniformly setose interstriae 8 will separate it from all other species.

**Description.** Female holotype (Fig. 9). **Body.** Body moderately large, length 15.5 mm, maximum width 8.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface black, glossy, with green metallic sheen; head with green metallic sheen on lower surface of posterior half of head; pronotum with green metallic sheen on lower surface of anterior and lateral declivities and median sulcus; elytra with uniform green metallic sheen; ventrum with faint greenish and coppery metallic sheen; pygidium with green metallic sheen; legs with coppery and greenish metallic sheen on femora and tibiae. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth ogival; clypeal median emargination v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae anteriorly and small rough irregular tubercles posteriorly; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt irregular tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina low, more than 6 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge slightly sinuous medially in frontal view; eyes moderately large in dorsal view, interocular ratio 5.2. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate basally with large confluent setiferous puncture medially changing into dense squamose and setiferous rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a simple anteriorly arcuate carina; anterior angles surface with fine setiferous granules, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered laterally by a sharp carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined and crenulate, with several long setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally, narrower and ill-defined on posterior half, evenly impressed throughout, elytral striae 5 similar to 4 on disc, striae punctures fine, well-defined and setiferous, adjacent striae edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate and with numerous larger setiferous punctures along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posteroventral margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anteroventral edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined rugose

punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur obtusely angular on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges slightly but distinctly arcuate in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on median half. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, narrowly glabrous on segment 4 and with a single row of setae medially on segments 5–6; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium finely punctate on disc.

**Measurements** (1 female). Length: 15.5 mm.

**Primary type data.** Holotype female (FSCA): [PARAGUAY: Dpto./ Amambay:/ P.N. Cero Corá/ 12–16.x.1981/ Colr. J.Kochalka]; [WORLD/ SCARAB./ DATABASE/ WSD00016763]; [HOLOTYPE ♀/ *Dendropaemon/ pilosissimus/ Génier & Arnaud, 2014*] red card.

**Material examined.** Primary type only.

**Etymology.** *Pilosissimus*, an adjective derived from *pilosus* (hairy) combined with the magnifier “-issimus” relating to the extreme pilosity of this species.

**Natural history.** Unknown.

**Remarks.** Male and variation unknown.

#### 10. *Dendropaemon (Coprophanæoides) renatii* Olsoufieff, 1924

(Figs. 10, 52–53, 136, 156)

*Dendropaemon renatii* Olsoufieff 1924, *Insecta* 13: 128 (original description)

*Dendropaemon refulgens* Olsufieffi Blut 1939, *Arch. Naturg. (N.F.)* 8: 271 (original description) **new synonymy**

*Dendropaemon renatii*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 272 (monograph)

*Dendropemon renatii*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon refulgens olsufieffi*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropemon renatii*: Lange 1947, *Arq. Mus. Paranaense* 6: 314 (distribution)

*Dendropaemon (Coprophanæoides) renatii*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (diagnosis, comment)

*Dendropaemon renatii*: Arnaud 1982, *Rev. Fr. Ent. (N.S.)* 4: 117 (notes)

*Dendropaemon refulgens olsufieffi*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon renatii*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (Coprophanæoides) renatii*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon renatii*: Philips et al. 2004, *Insect Syst. Evol.* 35: 51 (phylogeny)

**Type locality.** Brésil.

**Diagnosis.** The acutely notched external side of each clypeal tooth will place this species in *Coprophanæoides*. Within *Coprophanæoides*, the glabrous clypeus and pronotum will separate it from all other species except *D. bluti*, which has smaller eyes, *D. inflatus* which has atrophied elytral striae and *D. pauliani* which is known from Bolivia.

**Description.** Female holotype (Fig. 10). **Body.** Body moderately large, length 14.0 mm, maximum width 7.5 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface reddish brown, glossy, with green metallic sheen; head with green metallic sheen on posterior portion of clypeus, genae and frons; pronotum with green metallic sheen except for anteromedian carina, on anterior portion of disc and surface adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum with faint greenish and coppery metallic sheen; pygidium with green metallic sheen; legs light to dark brown, with faint coppery to greenish metallic sheen. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth ogival; clypeal median emargination v-shaped,

clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, rather sharply carinate internally; genal surface with ill-defined rugulae and minute tubercles on disc, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge obtusely angular in frontal view; eyes moderately large in dorsal view, interocular ratio 3.3.

**Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum smooth basally, with transverse rugulae anteriorly, with a fine ill-defined longitudinal sulcus on posterior half; pronotal anterior margin only slightly wider and flat lateral to eye; anterior portion with a simple anteriorly arcuate carina; anterior angles surface with more or less rough and irregular fine tubercles, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, bordered laterally by a sharp carina and anteriorly by a blunt tubercle; lateral portions strongly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base distinctly marginate; elytral striae 1–4 moderately wide basally and fine apically, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine and well-defined, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae moderately convex, minutely punctate along striae, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped.

**Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posteroventral margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anteroventral edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured; posterior surface with irregular rugose punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anteroventral edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment short, approximately as long as wide at apex. Metafemur broadly oval in anterior view, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with an irregular fine sulcus medially. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented, first segment short, approximately as long as wide at apex, with anteroventral carina well defined and reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium minutely punctate on disc.

**Measurements** (31 males, 26 females). Length: male 11.5–17.0 (13.8±1.5), female 11.0–17.0 (14.1±1.4) mm.

#### Primary type data.

***Dendropaemon renatii* Olsoufieff** (Fig. 136). Holotype female (MNHN): [Brasil VI/ Pujol 1892] handwritten; [Museum Paris/ ex. Coll./ R. Oberthur] blue card; [Dendrop. renatii sp.n./ det. G. OLSOUFIEFF] partly handwritten; [Dendropaemon/ renatii Ols./ HOLOTYPE/ P. ARNAUD DET 1982] partly handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016488]; [*Dendropaemon* ♀/ *renatii*/ Olsoufieff, 1924/ vid. Génier & Arnaud, 2009].

***Dendropaemon refulgens olsufieffi* Blut.** Holotype female (MTD): [Jatahy/ Prov.Goyas] green card; [♀]; [Coll. C. Felsche/ Kauf 20, 1918] green card; [Dendropaemon/ refulgens Waterh./ Jatahy, Goyaz. ♀] handwritten, black border; [refulgens/ Waterh/ Brasilia] handwritten, purple border; [WORLD/ SCARAB./ DATABASE/ WSD00016489]; [HOLOTYPE/ *Dendropaemon refulgens olsufieffi*/ Blut, 1939] red card; [*Dendropaemon* ♀/ *renatii*/ Olsoufieff, 1924/ dét. Génier & Arnaud, 2009].

**Material examined.** **BRAZIL:** GOIÁS, Jataí, (17°53'S, 51°43'W), [no date], coll. [anonymous]—1 female (holotype) (MTD); [unspecified locality], vi.1892, coll. Pujol—1 female (holotype) (MNHN); BAHIA, Cândido Sales, (15°30'18"S, 41°14'20"W), xii.2011, coll. J. Lambert—1 female (COBF); Encruzilhada, (15°31'47"S, 40°54'43"W), xii.1980, coll. A. Martínez & M. Alvarenga—3 females, 1 male (CMNC); same locality, xi.1972, coll. M. Alvarenga—1 female (FSCA); Santo Antônio da Barra [= Condeúba], (14°54'S, 41°58'W), xi–xii.1888,



coll. Gounelle—1 male (MNHN); GOIÁS, Campinas, (14°18'52"S, 49°9'30"W), xii.1994, coll. W. Crossara—1 female (CPFA); MATO GROSSO, Alto Garças, (16°57'1"S, 53°31'43"W), xii.1965, coll. [anonymous]—1 female (AMNH); Barra do Bugres, (15°4'26"S, 57°10'27"W), 26.iv.1983, coll. D. de Lima—1 female (CEMT); same locality, 26.iv.1986, coll. D. de Lima—1 female (CEMT); Cuiabá, (15°35'45"S, 56°5'49"W), 1.v.1993, coll. L. Pinto—1 male (CEMT); Diamantino, Alto Rio Arinos, x.1999, coll. E. Furtado—1 female (CEMT); Rio Verde de Mato Grosso, (18°54'59"S, 54°50'42"W), xi.1964, coll. A. Maller—1 female (MNRJ); Rosário Oeste, (14°50'S, 56°25'W), i.1972, coll. Dirings—1 male (CMNC); same locality, xi.1973, coll. Dirings—1 female (MZSP); MATO GROSSO DO SUL, Horto Rio Verde, International Paper, Três Lagoas, (20°55'21"S, 52°8'21"W), 21.ix.1993, coll. C.A.H. Flechtmann—1 male (MEFEIS); MINAS GERAIS, 5 mi. S Prata, (20°10'21"S, 41°48'19"W), 25.i.1980, coll. D.B. Thomas—1 male (BCRC); Águas Vermelhas, (15°44'51"S, 41°27'39"W), xii.1997, coll. A. Bello & F.Z. Vaz de Mello—3 females, 2 males (CEMT, MZLU); same locality, xi.1992, coll. E. Grossi—1 male (CEMT); same locality, xii.1994, coll. P. Arnaud—1 female (COBF); same locality, xi.1992, coll. P. Arnaud—1 female, 1 male (MNHN); Berizal, (15°36'39"S, 41°44'39"W), xii.2011, coll. J. Lambert—1 male (COBF); Montes Claros, (16°44'13"S, 43°51'53"W), i.1991, coll. [anonymous]—1 female (CEMT); same locality, xii.1999, coll. J.N.C. Louzada—1 male (CEMT); Montezuma, (15°8'27"S, 42°31'1"W), xii.1996, coll. P. Arnaud—1 male (CPFA); Três Marias, (18°12'18"S, 45°13'58"W), xii.1990, coll. [anonymous]—1 male (CEMT); PARANÁ, Arapoti, (24°8'43"S, 49°49'8"W), x, coll. A. Maller—1 male (CMNC); same locality, xi, coll. [anonymous]—1 male (CPFA); Cachoeirinha, xi.1940, coll. [anonymous]—1 female (WDEC); Jaguariaíva, (24°14'16"S, 49°43'21"W), xii.1975, coll. M. Alvarenga—5 females, 12 males (CPFA); RIO GRANDE DO SUL, Pelotas, (31°46'34"S, 52°21'34"W), 18.ii.1951, coll. C.M. Biezanko—1 male (BMNH); RONDÔNIA, Vilhena, (12°44'3"S, 60°8'40"W), xi.1973, coll. M. Alvarenga—1 male (CEMT); SÃO PAULO, Botucatu, (22°53'26"S, 48°27'19"W), 27.xi.1973, coll. Montovani—1 male (CMNC); **PARAGUAY**: AMAMBAY, Parque Nacional Cerro Corá, (22°37'41"S, 56°12'28"W), 19–21.i.2001, coll. Mráček—1 female (SPPC).

**Natural history.** The very few specimens with data were collected at black light trap and one specimen was collected in cerrado sujo.

**Remarks.** Males differ by the higher and narrower clypeofrontal carina and by the shape of the anterior pronotal carina which is tuberculate medially and the pronotum having a depressed area posterior to the anterior carina. The distinctly more slender first posterior tarsal segment will also separate males. Parameres are simply rounded apically in dorsal view and tapering in lateral view, the surface is lacking distinct microsculpture and minute tubercles apically (Figs. 52–53).

Variation, as usual, occurs in the extent of the metallic marking on head and pronotum. The greenish tinge is also variable and being very faint in teneral specimens. In some individuals the pronotum is showing some coppery and yellowish metallic tinge. The degree of coarseness and density of punctures on all surfaces is also variable and in some specimens the elytral interstriae are showing some larger irregular puncture and irregular patches of microsculpture along striae. The entire range of variation can be found in specimens from the same collecting event, therefore we are considering this variation as intraspecific.

**Nomenclature and taxonomy.** *D. refulgens olsufieffi* Blut, 1939 = *D. renatii* Olsoufieff, 1924, **new synonymy**. The holotype of *D. refulgens olsufieffi* was examined and compared to the holotype of *D. renatii* and differs by its larger size, slightly more coarsely punctate pronotum and elytra and more intense green metallic sheen. However, no other characters could be found to support this slight variation as a distinct species. As stated by Blut, he did not study the type of *D. refulgens*, and obviously misidentified as *D. renatii* a specimen which he studied. The specimen identified by Blut as *D. renatii* is in fact and new taxon described herein as *D. bluti*.

### ***Dendropaemon (Dendropaemon) Perty, 1830***

**Type species:** *Eurysternus piceus* Perty, 1830; subsequent designation by Blut (1939: 267).

**Diagnosis.** Size small to large. Habitus rectangular in dorsal view, parallel sided; with metallic sheen on head, pronotum and elytra. Body moderately compressed dorsoventrally. Clypeal edge acutely angularly emarginate on external side of each clypeal tooth; clypeal teeth acutely angular to ogival. Pronotum with some fine to coarse punctures on disc; anterior margin flat lateral to eyes; lateral fossae bordered laterally by a blunt carina and anteriorly by a blunt tubercle. Elytral marginate. Meso and metatarsi similar in shape, three segmented, first segment approximately as long as wide at apex, last segment spiniformly produced internally, with setae apically.

# 11. *Dendropaemon (D.) aenigmaticus* Génier & Arnaud, new species

(Figs. 11, 54–55, 112, 157)

**Type locality.** PK 125, Route N2 (Cayenne-Saint-Georges-de-L'Oyapock), Guyane française.

**Diagnosis.** The two-segmented meso- and metatarsi of which the first segment is approximately 3 times as long as wide at apex, the completely glossy black body and the clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. From closely related species it can be separated from *D. angustulus*, *D. larseni*, *D. telephus* by its larger body size and more robust shape and dorsoventrally compressed body; from *D. flechtmanni* and *D. vazdemelloi* by its much finer elytral striae 1–4; from *D. ater* by its flat posterior protibial surface and nearly semicircular clypeal edge. The more slender and gradually tapering toward apex meso and metatibia will separate it from *D. piceus*, from which it also differs by its only minutely punctate elytral striae.

**Description.** Male holotype (Fig. 11). **Body.** Body moderately large, length 14.5 mm, maximum width 8.0 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus narrowly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a well-defined v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface simply punctate, with a long and acute transverse carina; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly sinuous medially in frontal view; eyes small in dorsal view, interocular ratio 4.4. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate throughout, with a fine ill-defined longitudinal sulcus on posterior half; pronotal anterior margin only slightly wider and flat lateral to eye; anterior portion with a broad and fine tectiform carina tuberculate medially; anterior angles surface simply punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae ill-defined, moderately concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine on disc, finer and lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures minute, stria 1 well-defined apically, connecting to marginal stria; interstriae flat, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posteroventral margin rather thick, evenly developed, internal edge rather narrow, with a brush of long setae along anteroventral edge, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anteroventral edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge carinate, sharp. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented (Fig. 112), first segment elongate, more than three times as long as wide at apex, with anteroventral carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 54–55). Parameres simply rounded apically in dorsal view; surface smooth, glossy apically.

**Measurements** (1 male). Length: 14.5 mm.

**Primary type data.** Holotype male (CPFA): [24/12/2007 PI/ rt st georges PK125/ JL GIUGLARIS]; WORLD/ SCARAB./ DATABASE/ WSD00017631]; [HOLOTYPE/ Dendropaemon/ aenigmaticus n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** Primary type only.

**Etymology.** *Aenigmaticus*, an adjective relating to the status of this species known only by the holotype despite extensive collecting in French Guiana using flight interception traps.

**Natural history.** Unknown.

**Remarks.** Female and variation unknown.

At the moment we feel confident that this individual represents a new species, especially as the sclerites of the internal sac also differs from *D. ater*, its most closely related species.

## 12. *Dendropaemon (D.) amazonicus* Génier & Arnaud, new species

(Figs. 12, 56–57, 113, 157)

**Type locality.** Reserva Florestal Adolpho Ducke, 26 km NE Manaus, Amazonas, Brazil.

**Diagnosis.** The clypeal teeth lacking emargination laterally with the presence of metallic sheen on head pronotum and elytra and the finely punctate pronotal disc will separate *D. amazonicus* from all other species except from *D. viridis* from which it can be separated by its more convex body and angularly produced metasternum.

**Description.** Male holotype (Fig. 12). **Body.** Body moderately large, length 13.0 mm, maximum width 7.5 mm; body subrectangular; dorsum slightly convex. **Color.** Dorsal surface dark brown to black, glossy, with greenish metallic sheen; head with green metallic sheen on genae and frons; pronotum with green metallic sheen except for an irregular transverse band on anterior half; elytra with uniform green metallic sheen; ventrum dark brown to black; pygidium with greenish metallic sheen; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth acutely triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and coarse rugulae anteriorly and simply punctate posteriorly, with a short and sharp transverse carina; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, lacking carina or tubercle, clypeofrontal carina apical edge straight in frontal view; eyes moderately large in dorsal view, interocular ratio 3.9. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum finely punctate on disc, with a fine longitudinal sulcus on posterior half; pronotal anterior margin only slightly wider and flat lateral to eye; anterior portion with a transverse sinuate bulge; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions strongly explanate; pronotal basal fossae well-defined, concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 0.8; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures fine, not encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae flat, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur ventral surface slightly but distinctly convex and glabrous anteriorly, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a brush of long setae along anterointernal edge, remaining surface finely punctate along setae. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with coarse irregular punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia robust, slightly widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur subrectangular in anterior view,

approximately twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, glossy between punctures. Metatarsus 2-segmented (Fig. 113), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 56–57). Parameres simply rounded apically in dorsal view; surface smooth, glossy apically.

**Measurements** (2 males, 1 female). Length: male 12.5–16.0 (14.3±2.5), female 13.0 mm.

**Primary type data.** Holotype male (BMNH): [BRAZIL, Amazonas/ Reserva Ducke/ 26km NE of Manaus/ Flight Intercept Trap/ 1995–1996]; [BMNH(E)/ 2003-84]; [CF2 Abnl/ 25%] handwritten; [43 14] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016696]; [HOLOTYPE/ Dendropaemon/ amazonicus n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** BRAZIL: AMAZONAS, Est. BR 17, Km 38, Manaus, 7.viii.1969, coll. [illegible]—1 female allotype (CMNC); Reserva Florestal Adolpho Ducke, 26 km NE Manaus, (2°57'S, 59°57'W), 1995–1996, coll. [anonymous]—2 males (incl. holotype, 1 paratype) (BMNH).

**Etymology.** *Amazonicus*, pertaining or belonging to the Amazon, the region where the three specimens known were collected.

**Natural history.** The holotype and a paratype were collected using flight intercept traps set in primary Amazonian rain forest (Reserva Ducke).

**Remarks.** Female differ from male by the anterior pronotal carina which is unmodified medially; the median carina is bluntly tuberculate medially, and depressed on each side of tubercle in male. Little variation observed aside the extent of the green metallic marking on pronotum. In one paratype the pronotum is entirely black and in the other the basal half of disc has green metallic reflections.

### 13. *Dendropaemon (D.) angustulus* Génier & Arnaud, new species

(Figs. 13, 58–59, 114, 157)

**Type locality.** 26 km N Guasipati, Bolivar, Venezuela.

**Diagnosis.** The two-segmented meso- and metatarsi of which the first segment is approximately 3 times as long as wide at apex, the completely glossy black body and the clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. From closely related species it can be separated from most other species in the group by its smaller size and robust metafemur which is approximately twice as long as wide. From *D. telephus* by its narrower elytral striae and from *D. larseni* by its smaller size and geographic distribution (see remarks below).

**Description.** Male holotype (Fig. 13). **Body.** Body small, length 11.0 mm, maximum width 5.0 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface simply punctate, with a sharp transverse carina; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 4.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum finely punctate basally, punctures becoming larger anteriorly, with a fine longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a slightly tri-sinuous carina; anterior angles surface simply punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae very small and rounded; posterior margin ill-defined, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct



margin, simply convex; elytral striae 1–4 moderately wide on disc, finer and lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures ill-defined throughout, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge absent. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thin, evenly developed, internal edge rather narrow, with a brush of long setae along anterointernal edge, remaining surface smooth along setae. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented (Fig. 114), first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 58–59). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.

**Measurements** (14 males, 29 females). Length: male 8.5–11.5 (9.8±1.0), female 7.5–11.5 (9.6±1.0) mm.

**Primary type data.** Holotype male (CMNC): [VEN: BOLIVAR/ 26km N Guasipati/ 24.VI.–12.VII.87/ S&J Peck, FIT, sandy/ seasonallyhumidforest]; [WORLD/ SCARAB./ DATABASE/ WSD00017021]; [HOLOTYPE/ Dendropaemon/ angustulus n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** **BRAZIL:** AMAZONAS, Reserva Florestal Adolpho Ducke, 26 km NE Manaus, (2°57'S, 59°57'W), 1995–1996, coll. [anonymous]—2 males (incl. 2 paratypes) (BMNH); PARÁ, Estação de pesquisas Pinkaití, Area Indígena Kayapo, Redenção, (7°46'S, 51°58'W), x.1999, coll. P.Y. Scheffler—1 female, 1 male (paratypes) (CEMT); Município Redenção, (7°46'S, 51°58'W), xii.1998, coll. P. & T. Scheffler—1 female (paratype) (CEMT); same locality, xi.1998, coll. P. & T. Scheffler—1 male (paratype) (CEMT); Óbidos, (1°54'30"S, 55°31'8"W), [no date], coll. [anonymous]—1 female (paratype) (SMF); same locality, xi.1953, coll. F.M. Oliveira—1 male (paratype) (WDEC); RORAIMA, Ilha de Maracá, (3°25'N, 61°40'W), ix.1996, coll. Ribeiro & Vaz-de-Mello—1 female (paratype) (CEMT); **GUYANA:** UPPER DEMERARA-BERBICE, Kurupakari, Rio Essequibo, (4°40'N, 58°40'W), viii.1920, coll. A.A. Abraham—1 female (paratype) (BMNH); **GUYANE FRANÇAISE:** Crique Blanche, R.N. 2, (4°33'39"N, 52°23'50"W), v.2011, coll. Giuglaris—1 female, 1 male (paratypes) (CPFA); Régina, (4°19'N, 52°8'W), viii.2009, coll. F. Bondil—1 female (paratype) (CEMT); same locality, i.2009, coll. [anonymous]—1 female, 1 male (paratypes) (CPFA); Réserve naturelle des Nouragues, (4°19'N, 52°22'W), ii.2003, coll. F. Feer—2 females (incl. 2 paratypes) (MNHNB); same locality, 28.iv.2001, coll. F. Feer—1 female (paratype) (CPFA); same locality, 28.iii.2002, coll. F. Feer—2 females (incl. 2 paratypes) (CPFA); same locality, 25.vi.2008, coll. F. Feer—1 female (paratype) (MNHNB); same locality, 26.viii.2010, coll. [anonymous]—1 female, 1 male (paratypes) (COBF); Saül, (3°37'N, 53°12'W), 20.v.2011, coll. [anonymous]—1 female (paratype) (COBF); same locality, 27.v.2011, coll. [anonymous]—1 female (paratype) (COBF); **VENEZUELA:** BOLIVAR, 26 km N Guasipati, (7°41'35"N, 61°57'19"W), 24.vi.–12.vii.1987, coll. S. & J. Peck—2 females, 4 males (incl. holotype, 4 paratypes) (BDGC, CMNC); 8 km N Guri, elev. 200 m (7°48'49"N, 63°0'52"W), 16.vii.–11.viii.1986, coll. B. Gill—1 female (paratype) (BDGC); Guri, (7°46'16"N, 63°1'42"W), 15–17.vi.1996, coll. H. & A. Howden—1 female (paratype) (CMNC); Lago Guri Islands, elev. 270 m (7°21'N, 62°52'W), v–vi.2003, coll. T. Larsen—1 male (paratype) (AFIC); Puente Cocuizas, 70 km Ciudad Bolívar, (7°41'35"N, 64°0'18"W), 19.vi.–3.viii.1987, coll. S. & J. Peck—2 females, 1 male (paratypes) (BDGC, CMNC); Río Caura, 10 km N Corocito, (7°8'40"N, 64°58'28"W), 18.vi.–3.viii.1987, coll. S. & J. Peck—2 females (incl. 2

paratypes) (BDGC, CMNC); Río Caura, near Puerto Cabello del Caura, (7°8'N, 64°59'W), 15–28.xii.1987, coll. B.D. Gill—1 female (paratype) (BDGC); Río Sipao, 110 km E Caicara, (7°24'47"N, 65°12'24"W), 17.vi.–4.viii.1987, coll. S. & J. Peck—3 females (incl. 3 paratypes) (BDGC, CMNC).

**Etymology.** *Angustulus*, a Latin adjective related to the narrow body of this species.

**Natural history.** All specimen with data on collecting method were obtained using flight interception traps set in dry forest, forested ravine in woodland, gallery forest, rainforest and sandy seasonally humid forest.

**Remarks.** Females are difficult to separate from males, but when set side by side to a male they present a more simply angular anteromedian pronotal carina which is weakly tuberculate medially. As opposed to most other Scarabaeine, the 8th abdominal segment is not proportionally longer along midline in ventral view in females and thus of very limited help. No variation except for size and development of secondary sexual characters.

This species is extremely closely related to *D. larseni*. At this point, we are considering these two forms as distinct species, *D. angustulus* being the Guiana shield endemic and *D. larseni* the southern Amazonian endemic. However, at this time it is impossible to state if the two forms are allopatric or sympatric in distribution. If more material becomes available from the central Amazonian area with intermediate forms between *D. angustulus* and *D. larseni* this status will have to be reconsidered.

#### 14. *Dendropaemon (D.) ater* (Laporte, 1832)

(Figs. 14, 60–61, 137, 157)

*Enicotarsus Ater* Laporte 1832, *Ann. Soc. Ent. Fr.* 1: 402 (original description)

*Enicotarsus ater*: Castelnau 1840, *Hist. Nat. Ins.* 2: 83 (diagnosis, distribution)

*Dendropaemon ater*: Harold 1869, *Cat. Col. IV*: 1020 (mentioned as synonym)

*Enicotarsus ater*: Harold 1875, *Col. Hefte* 13: 68 (comment)

*Dendropaemon ater*: Gillet 1911, *Col. Cat.* 38: 88 (mentioned as synonym)

*Dendropaemon ater*: Olsoufieff 1924, *Insecta* 13: 159 (mentioned as synonym)

*Dendropaemon ater*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 291 (mentioned as synonym)

*Dendropaemon atrum*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (mentioned as synonym)

**Type locality.** Environ de Cacao, Guyane française.

**Diagnosis.** The two-segmented meso- and metatarsi of which the first segment is approximately 3 times as long as wide at apex, the completely glossy black body and the clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. From closely related species it can be separated from *D. angustulus*, *D. larseni*, *D. telephus* by its larger body size and more slender metafemur, from *D. flechtmanni* and *D. vazdemelloi* by its much finer elytral striae 1–4 and finally, from *D. aenigmaticus* by its distinctly convex posterior protibial surface and more broadly arcuate clypeal edge. The more slender and gradually tapering toward apex meso- and metatibia will separate it from *D. piceus*, from which it also differs by its only minutely punctate elytral striae.

**Description.** Male neotype (Fig. 14). Body. Body large, length 15.0 mm, maximum width 7.5 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black.

**Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth obtusely triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface simply punctate, with a long and acute transverse carina; clypeofrontal carina low, more than 6 times wider than high, slightly bisinuate in dorsal view, simply carinate, clypeofrontal carina apical edge slightly sinuous medially in frontal view; eyes small in dorsal view, interocular ratio 5.2. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate throughout, with a fine ill-defined longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a tri-sinuous carina; anterior angles surface minutely punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae small, more or less rounded; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 0.9; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5

atrophied, lacking fine carina on each side on disc, stria punctures minute, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented, first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3-6 longitudinally flat; sternites 4-6 with 1-3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 60-61). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.

**Measurements** (4 males, 12 females). Length: male 14.0-17.0 (15.4±1.4), female 13.5-17.5 (15.2±1.1) mm.

**Primary type data** (Fig. 137). Neotype male (CPFA>MNHN) **present designation:** [Guyane française/ Environs de Cacao/ 6.XII.2008/ ex. filet cryldé/ P. Bonin réc.]; [WORLD/ SCARAB./ DATABASE/ WSD00017501]; [NEOTYPE/ Enicotarsus/ ater/ Laporte, 1832/ dés. Génier & Arnaud, 2014] red card; [Dendropaemon ♂/ ater/ (Laporte, 1832)/ vid. F. Génier, 2013].

**Material examined. BRAZIL:** MATO GROSSO, Campos de Júlio, 30 km N Uirapuru, (13°57'6"S, 59°16'4"W), xii.2002, coll. A. Foucart—1 female (CEMT); Fazenda São Nicolau (mata nordeste), Município Cotriguaçu, (9°50'25"S, 58°15'9"W), 10.x.2009, coll. F. Z. Vaz de Mello—1 male (CEMT); Lucas do Rio Verde, (13°4'22"S, 55°55'10"W), 2.xi.2011, coll. B.F. Camera—1 female (CEMT); **GUYANA:** POTARO-SIPARUNI, Iwokrama Forest Reserve, elev. 600 m (4°40'19"N, 58°41'4"W), 25.v.2001, coll. R. Brooks & Z. Falin—1 female (CMNC); **GUYANE FRANÇAISE:** Centre ORSTOM de Cayenne, (4°56'39"N, 52°18'56"W), 20.ii.1989, coll. G. Tavakilian—1 female (CEMT); environs de Cacao, (4°35'N, 52°28'W), 6.xii.2008, coll. P. Bonin—1 male (neotype) (CMNC); same locality, 19.i.2009, coll. P. Bonin—1 female (CPFA); La Source, Cacao, (4°35'N, 52°28'W), iv.2009, coll. P. Bonin—1 female (CPFA); Montagne des Pères, Kourou, (5°5'50"N, 52°38'23"W), xii.2012, coll. Giuglaris—2 females (CPFA); PK 5, Piste KM 25, Route Régina-Saint-Georges, (4°6'54"N, 52°7'16"W), iii.2008, coll. J.L. Giuglaris—1 female (ATHC); Régina, (4°19'N, 52°8'W), iv.2009, coll. J.L. Giuglaris—1 female (PMOC); Réserve naturelle des Nouragues, (4°19'N, 52°22'W), 30.iii.2006, coll. F. Feer—1 female (MNHNB); same locality, 28.vi.2008, coll. F. Feer—1 male (MNHNB); Savane Matiti, (5°5'N, 52°37'W), i.2011, coll. [anonymous]—1 female (CPFA); [NO DATA]: -, coll. [anonymous]—1 male (IRSNB).

**Natural history.** A single specimen was collected using a dung trap, all other specimens with data were collected using flight interception traps, "filet cryldé" or window trap.

**Remarks.** Meso and hyperthelic males can only be separated from females by the slightly larger median tubercle of the pronotal anterior carina. The pronotal anterior carina is slightly more sinuous medially and lateral portion set slightly more behind.

Variation, mostly limited to size and development of the pronotal median tubercle. The Brazilian specimens are externally indistinguishable from the Guianan specimen, however, the only male known differs by the shape of parameres which are more slender and by the shape of the internal sac sclerites. At this point we consider this variation as part of a cline until more material becomes available.

**Nomenclature and taxonomy.** Laporte's type material could not be located in the MNHN (Paris) where Horn

& Kahle (1990) state it should be deposited after transiting through van Lansberge's and Oberthür's collection. However, Evenhuis (2012) state that the personal collection of Laporte made prior to 1840 was transferred to Washington D.C. and is presumed to have been destroyed in a fire at the Smithsonian Institution in 1865. In order to stabilize nomenclature for a group of closely related species we designate a neotype for this species. Laporte's laconic description being applicable to nearly all black and shiny species, we selected a male specimen of one of the species that is from French Guiana to match the type locality as much as possible and which is relatively frequently collected. The neotype specimen is relatively intact, the clypeal anterior edge is slightly abraded and the pronotal disc has a small depression on the right side which is the result of a slight malformation.

### 15. *Dendropaemon (D.) flechtmanni* Génier & Arnaud, new species

(Figs. 15, 62–63, 157)

**Type locality.** Reserva Ecológica do IBGE, Brasília, Distrito Federal, Brasil.

**Diagnosis.** The two segmented meso- and metatarsi of which the first segment is approximately 3 times as long as wide at apex, the completely glossy black body and the clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. From closely related species it can be separated from *D. angustulus*, *D. larseni*, *D. telephus* by its more slender metafemur. Differs from *D. aenigmaticus*, *D. ater* and *D. piceus* by its more dorsoventrally compressed body and wider elytral striae which are less finely carinate laterally. Finally, distinguishable from *D. vazdemelloi* by its more robust body and denser and shorter ventral pilosity.

**Description.** Male holotype (Fig. 15). **Body.** Body moderately large, length 14.0 mm, maximum width 7.5 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally on anterior half; genal surface simply punctate, with a long and acute transverse carina; clypeofrontal carina low, more than 6 times wider than high, slightly bisinuate in dorsal view, simply carinate, clypeofrontal carina apical edge slightly sinuous medially in frontal view; eyes small in dorsal view, interocular ratio 5.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate throughout, with a fine ill-defined longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a broad and fine tectiform carina tuberculate medially; anterior angles surface minutely punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae small, more or less rounded; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and gradually tapering toward apex, lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, striae punctures ill-defined, adjacent striae edge encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather narrow, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge obliquely truncated internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur



elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented, first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 62–63). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.

**Measurements** (9 males, 12 females). Length: male 13.0–15.0 (14.0±0.7), female 12.0–17.0 (14.3±1.5) mm.

**Primary type data.** Holotype male (MEFEIS): [BRASIL: MATO GROSSO DO SUL/ UNESP Farm, Selvira/ 20°20'08"S 051°24'44"W/ 14.I.2011, cerrado fragment,/ unbaited window trap/ H. Wilson coll.]; [WORLD/ SCARAB./ DATABASE/ WSD00021092]; [HOLOTYPE/ *Dendropaemon flechtmanni* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** **BRAZIL:** BAHIA, Macugê, Parque Nacional Chapada Diamantina, (13°0'S, 41°22'W), 27.ii.2010, coll. T. Vasconcelos—1 male (paratype) (CEMT); DISTRITO FEDERAL, Estação Experimental de Biologia da Universidade de Brasília (UnB), Asa norte, Brasília, (15°44'14"S, 47°52'55"W), 6.xi.2012, coll. M.R. Frizzas—1 male (paratype) (CEMT); same locality, 17.i.2013, coll. M.R. Frizzas—1 male (paratype) (CEMT); Reserva Ecológica do IBGE, (15°56'41"S, 47°53'7"W), i.2000, coll. M. Milhomem—1 female (paratype) (CEMT); MATO GROSSO DO SUL, UNESP Farm [=Fazenda Experimental da Universidade Estadual Paulista, campus de Ilha Solteira], Selvíria, (20°20'8"S, 51°24'44"W), 11.i.2008, coll. H. Wilson—1 female allotype (MEFEIS); same locality, 27.xi.2010, coll. H. Wilson—1 female (paratype) (MEFEIS); same locality, 14.i.2011, coll. H. Wilson—1 male (holotype) (MEFEIS); same locality, 21.i.2011, coll. H. Wilson—1 male (paratype) (MEFEIS); same locality, 28.i.2011, coll. H. Wilson—1 female (paratype) (MEFEIS); MINAS GERAIS, Rio Novo, (21°28'29"S, 43°7'37"W), 3.xii.2012, coll. H.M.L. Advincola—1 female (paratype) (CEMT); same locality, 10.xii.2012, coll. H.M.L. Advincola—1 male (paratype) (CEMT); same locality, 17.xii.2012, coll. H.M.L. Advincola—1 female (paratype) (CEMT); same locality, 24.xii.2012, coll. H.M.L. Advincola—3 females, 1 male (paratypes) (CEMT); same locality, 7.i.2013, coll. H.M.L. Advincola—1 female (paratype) (CEMT); Viçosa, (20°45'S, 42°52'W), x.1998, coll. Vaz-de-Mello—1 female (paratype) (CEMT); RIO DE JANEIRO, Cachoeiras de Macacu, São José da Boa Morte, (22°35.66'S, 42°51.46'W), 18–22.ii.2013, coll. T. Carvalho & M. Uzêda—1 male (paratype) (CEMT); Cantagallo, (21°58'43"S, 42°22'1"W), [no date], coll. [anonymous]—1 male (paratype) (MNHN); Município Duque de Caxias, (22°47'S, 43°19'W), xii.1974, coll. W. Telles—1 female (paratype) (CEMT).

**Etymology.** A patronym, in honor of Carlos Flechtmann, professor at Universidade Estadual Paulista, who provided us with many specimens used in this work including the first known series of specimens of this species.

**Natural history.** All specimens with data were collected in cerrado fragment. Three specimens using window traps (flight interception traps), a specimen collected in pitfall trap baited with pig (*Sus scrofa*) excrement and another specimen in a trap baited with peccary dung (*Tayassu tajacu*).

**Remarks.** Females are rather difficult to separate from males using external characters. The anterior pronotal carina is less strongly tuberculate medially and straighter and the first metatarsomere is more robust.

Variation limited to body size and dorsal punctation coarseness. Individuals smaller than 14.0 mm appear more elongated, at first the two smaller specimens were collected from two localities around Rio de Janeiro and we investigated the possibility that they could belong to a different species that would have been restricted to the Atlantic forest. However, additional material recently became available which included specimens of the same length as those of Rio de Janeiro state from localities in the States of Minas Gerais and Distrito Federal. Those specimens also appeared more elongated thus supporting the variation as intraspecific. Four males were dissected and the internal sac prepared. Some minor variation in the shape of the sclerites can be observed between individuals.

## 16. *Dendropaemon (D.) larseni* Génier & Arnaud, new species

(Figs. 16, 64–65, 157)

**Type locality.** CICRA [=Centro de Investigación y Capacitación Río Los Amigos] (12°34'10"S, 70°06'01"W, 250 m), Los Amigo Biological Station, Madre de Dios, Peru.

**Diagnosis.** The two-segmented meso- and metatarsi of which the first segment is approximately 3 times as long as wide at apex, the completely glossy black body and the clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. From closely related species it can be separated from most other species in the group by its very robust metafemur which is twice as long as wide. From *D. telephus* by its narrower elytral striae and from *D. angustulus* by its larger average size and geographic distribution (known from Peru only).

**Description.** Male holotype (Fig. 16). **Body.** Body small, length 12.0 mm, maximum width 5.0 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface simply punctate, with a sharp transverse carina; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly sinuous medially in frontal view; eyes small in dorsal view, interocular ratio 4.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum finely punctate basally, punctures becoming larger anteriorly, with a fine longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a slightly tri-sinuous carina; anterior angles surface simply punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae very small and rounded; posterior margin ill-defined, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and gradually tapering toward apex, lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures ill-defined throughout, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge absent. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thin, evenly developed, internal edge rather narrow, with a brush of long setae along anterointernal edge, remaining surface smooth along setae. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 64–65). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.

**Measurements** (3 males, 4 females). Length: male 9.5–12.5 (11.3±1.6), female 10.0–11.0 (10.6±0.5) mm.

**Primary type data.** Holotype male (AFIC): [PERU: MADRE DE DIOS/ CICRA Loos Amigos B.S./

12°34'10"S 70°06'01"W/ 250 m. T. Larsen, 2005]; [WORLD/ SCARAB./ DATABASE/ WSD00017625]; [HOLOTYPE/ *Dendropaemon/ larseni* n.sp./ Génier & Arnaud, 2014].

**Material examined.** PERU: CUZCO, Timpia (Misión), Echarate, La Convención, elev. 503 m (12°4'38"S, 72°54'56"W), 5–6.vii.2011, coll. P. Sánchez—1 male (paratype) (MUSM); MADRE DE DIOS, Centro de Investigación y Capacitación Río Los Amigos [=CICRA], elev. 250 m (12°34'10"S, 70°6'1"W), 2005, coll. T. Larsen—2 females, 2 males (incl. holotype, 2 paratypes) (AFIC); Limón camp, Río Palma Real Grande, elev. 220 m (12°32'20"S, 68°51'40"W), 11–12.x.1999, coll. T. Larsen—1 female (paratype) (AFIC); Oculito camp, Río Patuyacu, elev. 400 m (12°39'S, 68°55'33"W), 19.iii.1999, coll. T. Larsen—1 female (paratype) (AFIC).

**Etymology.** A patronym in honor of our friend and colleague Trond Larsen who has provided several specimens included in this work and ecological information.

**Natural history.** Three specimens with data were collected using flight interception traps setup in lowland Amazonian rainforest.

**Remarks.** Females are difficult to separate from males, but when set side by side to a male they present a more simply angular anteromedian pronotal carina which is weakly tuberculate medially.

Variation, slight and restricted to size and density of punctures on pronotum and elytra.

Two specimens from Brazil are very similar to *D. larseni* but at the moment prefer to exclude them from the type series and keep them as of uncertain status until more material becomes available. The first specimen is a female from Rio Branco (Acre) which have the lateral portion of the pronotum more explanate and the genal carina distinctly arcuate instead of straight but otherwise very similar to *D. larseni*. The second specimen, a male, from Fazenda São Nicolau (Mun. Cotriguaçu, Mato Grosso) is similar to the preceding, unfortunately the clypeus is worn down and clypeal teeth absent. The lateral portion of the pronotum are more similar to those of *D. larseni*.

## 17. *Dendropaemon (D.) piceus* (Perty, 1830)

(Figs. 17, 66–67, 138)

*Eurysternus piceus* Perty 1830, *Delec. Anim. Art.*: Pl. 8 (primary citation)

*Dendropaemon piceus*: Perty 1830, *Delec. Anim. Art.* (fasc. 1): 39 (description)

*Dendropemon piceus*: Harold 1869, *Cat. Col. IV*: 1020 (catalogue)

*Dendropemon piceus*: Harold 1875, *Col. Hefte* 13: 68 (comment)

*Dendropemon piceus*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon piceus*: Olsoufieff 1924, *Insecta* 13: 122 (monograph)

*Dendropaemon piceus*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 290 (monograph)

*Dendropemon piceum*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon (D.) piceum*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon piceus*: Scherer 1983, *Spixiana, Suppl.* 9: 297 (type data)

*Dendropaemon piceum*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (D.) piceus*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon* sp. aff. *piceum*: Larsen et al. 2006, *Col. Bull.* 60: 319 (biology)

**Type locality.** Provinciae Sancti Pauli, Brasilia australi.

**Diagnosis.** The two-segmented tarsi combined with the large and glossy black and largely flat body with clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. From closely related species it can be easily separated by the shape of the meso- and metatibiae, which are parallel sided on most of the distance in anterior view.

**Description.** Male holotype (Fig. 17). **Body.** Body large, length 20.0 mm, maximum width 11.0 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface simply punctate, with a long blunt transverse carina; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.4. **Pronotum.** Pronotum transverse in dorsal

view, pronotal width/length ratio 1.6; disc of pronotum minutely punctate throughout, with a fine ill-defined longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a slightly tri-sinuous carina tuberculate medially; anterior angles surface minutely punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae small more or less rounded; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine on disc and gradually tapering toward apex, lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures fine and well-defined, adjacent stria edge shallowly encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather narrow, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, parallel sided on most of length; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less flat, bordered anteriorly and posteriorly by an almost complete setal row. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia rather elongate, parallel sided on most of distance in anterior view, anterior surface with distinct row of setae, surface with ill-defined irregular microsculpture, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented, first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 66–67). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.

**Measurements** (1 male). Length: 20.0 mm.

**Primary type data** (Fig. 138). Holotype male (ZSMC): [1./ Brasilia/ Dendropaemon/ piceus/ Prty] handwritten; [piceus Perty] handwritten; [Type von/ Dendropaemon/ piceus Perty] partly handwritten, red card; [WORLD/ SCARAB./ DATABASE/ WSD00016490]; [HOLOTYPE/ *Eurysternus/ piceus/ Perty, 1830*] red card; [Dendropaemon/ piceus/ Perty, 1830/ vid. Génier & Arnaud, 2009].

**Material examined.** Primary type only.

**Natural history.** Unknown.

**Remarks.** Female and variation unknown.

The holotype, which is the only known specimen, bears the information “Brasilia”. Perty states in the original description that this species was collected along with *D. viridis* Perty in Southern Brazil and more specifically from the “Province of Sao Paulo” from rotting wood. Despite over a century and a half of collecting in this region no other specimens were found. We suggest that it could rather be an endemic of the caatinga instead. See also remarks under *D. viridis*.

## 18. *Dendropaemon (D.) telephus* Waterhouse, 1891 (Figs. 18, 68–69, 139, 157)

*Dendropemon telephus* Waterhouse 1891, *Ann. Mag. Nat. Hist.* 6 8: 55 (original description)

*Dendropemon telephus*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon telephus*: Olsoufieff 1924, *Insecta* 13: 127 (monograph)



*Dendropaemon telephus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 291 (monograph)  
*Dendropemon telephum*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropaemon (D.) telaphum*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)  
*Dendropaemon telephum*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon telephus*: Vitolo **2000**, *Rev. Acad. Colomb. Cienc.* 24: 599 (identification key)  
*Dendropaemon (D.) telephus*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)

**Type locality.** Cayenne.

**Diagnosis.** The two-segmented tarsi combined with the large and glossy black and largely flat body with clypeal teeth lacking emargination laterally will place this species in the *piceus* complex. The rather short metatibia, which is approximately twice as long as wide will separate it from other species in the group except *D. larseni* which is known from Peru and has a smaller average size (9.5–12.5 mm) and *D. angustulus* which has smaller average size (7.5–11.5 mm).

**Description.** Male holotype (Fig. 18). **Body.** Body moderately large, length 13.5 mm, maximum width 6.5 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface simply punctate, with a long and acute transverse carina; clypeofrontal carina low, more than 6 times wider than high, slightly bisinuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.4. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate throughout, with a fine ill-defined longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a medially sinuous sharp carina transversely tuberculate medially; anterior angles surface finely punctate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae very small and rounded; posterior margin fine, interrupted on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and gradually tapering toward apex, lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures ill-defined throughout, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posteroventral margin rather thick, evenly developed, internal edge wide, with a contiguous row of setae along anteroventral edge, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some fine punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anteroventral edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur rather short, internal and lateral edges slightly but distinctly arcuate in ventral view, approximately twice as long as wide, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface convex between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented, first segment elongate, more than three times as long as wide at apex, with anteroventral carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium

minutely punctate on disc. **Male genitalia** (Figs. 68–69). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.

**Measurements** (3 males, 15 females). Length: male 13.0–13.5 (13.3±0.3), female 10.5–14.0 (12.8±0.8) mm.

**Primary type data** (Fig. 139). Holotype male (BMNH): [Type] disc with red border; [6745]; [229] handwritten, purple paper; [telephus/ (illegible)/ cayenne] handwritten, green card; [TYPE] red card; [Dendropaemon/ telephus/ (type) Waterh.] handwritten; [HOLOTYPE/ *Dendrop[a]emon/ telephus/ Waterhouse, 1891*] red card; [WORLD/ SCARAB./ DATABASE/ WSD00017050]; [*Dendropaemon* ♂/ *telephus/ Waterhouse, 1891*/ vid. F. Génier, 2013].

**Material examined**. **GUYANA**: CUYUNI-MAZARUNI, Kartabo, (6°16'57"N, 58°35'8"W), 1922, coll. [anonymous]—1 female (BMNH); DEMERARA-MAHAICA, Demerara, (6°48'N, 58°10'W), [no date], coll. [anonymous]—1 female (MTD); **GUYANE FRANÇAISE**: Cayenne, (4°54'3"N, 52°18'12"W), [no date], coll. [anonymous]—1 male (holotype) (BMNH); Mont Grand Matoury, (4°51'52"N, 52°20'58"W), xii.2012, coll. [anonymous]—6 females (COBF); same locality, i.2013, coll. [anonymous]—3 females, 1 male (COBF); same locality, ii.2013, coll. [anonymous]—3 females, 1 male (COBF); same locality, 11.vii.1998, coll. F. Lavalette—1 female (CPFA).

**Natural history**. The only specimen with data was found during the day in a forest trail.

**Remarks**. Females can be separated by their less elevated frontal carina and finer and barely tuberculate pronotal anterior carina.

Variation. All non-type specimens examined have the elytral striae puncture much larger and more deeply impressed.

## 19. *Dendropaemon (D.) viridis* (Perty, 1830)

(Figs. 19, 70–71, 115, 140, 157)

*Eurysternus viridis* Perty 1830, *Delec. Anim. Art.*: Pl. 8, Fig. 5 (primary citation)

*Dendropaemon viridis*: Perty 1830, *Delec. Anim. Art. (fasc. 1)*: 38 (description)

*Dendropemon viridis*: Harold 1869, *Cat. Col. IV*: 1020 (catalogue)

*Dendropemon crenatostratus* Felsche 1909, *Deut. Ent. Zeit.* 1909: 757 (original description) **new synonymy**

*Dendropemon viridis*: Felsche 1909, *Deut. Ent. Zeit.* 1909: 757 (comment)

*Dendropemon crenatostratus*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropemon viridis*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropemon viridis*: Olsoufieff 1924, *Insecta* 13: 122 (monograph)

*Dendropaemon crenatostratus*: Olsoufieff 1924, *Insecta* 13: 127 (monograph)

*Dendropaemon viridis*: Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 89 (identification key, comment)

*Dendropaemon crenatostratus*: Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 90 (identification key, comment)

*Dendropaemon crenatostratus*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 292 (monograph)

*Dendropaemon viridis*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 292 (monograph)

*Dendropaemon crenatostratus*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 490 (identification key, comment)

*Dendropaemon viridis*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 490 (identification key, comments)

*Dendropemon crenatostratum*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropemon viride*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropemon viridis*: Martínez 1944, *Rev. Arg. Ent.* 2: 35 (comment taxonomy)

*Dendropaemon crenatostratum*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon (D.) viridis*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon viridis*: Scherer 1983, *Spixiana, Suppl.* 9: 297 (lectotype designation)

*Dendropaemon crenatostratum*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon viride*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (D.) crenatostratus*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon (D.) viridis*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon viridis*: Philips et al. 2004, *Insect Syst. Evol.* 35: 51 (phylogeny)

**Type locality**. Provinciae Sancti Pauli, Brasilia australi.

**Diagnosis**. The two-segmented meso- and metatarsi of which the first segment is more than 3 times as long as wide at apex combined with the clypeal teeth lacking emargination laterally and the dorsum with metallic markings is unique in the genus.

**Description.** Female holotype (Fig. 19). **Body.** Body moderately large, length 14.5 mm, maximum width 7.0 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, with green metallic sheen; head with green and coppery metallic sheen on posterior portion of clypeus, genae and frons; pronotum with green metallic sheen except for an irregular transverse band on anterior half; elytra with green metallic sheen, except on humeral umbone; ventrum with faint greenish and coppery metallic sheen; pygidium with green metallic sheen; legs with faint coppery sheen. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally on anterior half; genal surface minutely punctate, with a long blunt transverse carina; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.1. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate on disc, punctures becoming fine on lateral declivities, with a fine ill-defined longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with an ill-defined carina; anterior angles surface with fine irregular granules, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae small, more or less rounded; posterior margin fine, interrupted on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and gradually tapering toward apex, lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 well-defined apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface flat, rather coarsely punctate and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured; posterior surface with some well-defined punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur obtusely angular on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface with irregular punctures and microsculpture, metatibial posterior surface convex between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 2-segmented (Fig. 115), first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc.

**Measurements** (2 males, 13 females). Length: male 12.0–13.5 (12.8±1.1), female 13.0–19.0 (14.3±1.6) mm.

#### Primary type data.

*Eurysternus viridis* Perty (Fig. 140). Lectotype female (ZSMC): [Sao Paulo] handwritten; [2./ Brasilia/ Dendropaem./ viridis/ Perty] handwritten; [Type von Dendropaemon/ viridis/ Perty] partly handwritten, red card; [LECTOHOLOTYPE/ Dendropaemon/ viridis Perty/ det. Dr G Scherer 1981] partly handwritten, red border card; [WORLD/ SCARAB./ DATABASE/ WSD00016464]; [*Dendropaemon* ♀/ *viridis*/ Perty, 1830/ vid. Génier & Arnaud, 2009].

*Dendropajemon crenatriatus* Felsche. Holotype female (MTD): [Ypiranga] handwritten; [Sao Paulo];

[Coll. C. Felsche/ Kauf 20, 1918] green card; [Typus] red card; [Staatl. Museum für/ Tierkunde Dresden]; [crenatostratus/ m./ Brasilia] handwritten, purple border; [WORLD/ SCARAB./ DATABASE/ WSD00002078]; [HOLOTYPE/ *Dendrop[a]emon/ crenatostratus/ Felsche, 1909*] red card; [*Dendropaemon* ♀/ *viridis/ Perty, 1930*/ dét. Génier & Arnaud, 2009].

**Material examined. NO DATA:**—coll. [anonymous]—1 female (MNHN). **BRAZIL:** SÃO PAULO, São Paulo, (23°32'S, 46°37'W), [no date], coll. [anonymous]—1 female (holotype) (MTD); [unspecified locality], [no date], coll. [anonymous]—1 female (paralectotype) (ZSMC); GOIÁS, Campinas, (14°18'52"S, 49°9'30"W), xi.1935, coll. [anonymous]—1 female (MNRJ); MINAS GERAIS, [unspecified locality], [no date], coll. [anonymous]—1 male (IRSNB); PARÁ, same locality, [no date], coll. [anonymous]—1 female (MTD); RIO GRANDE DO SUL, Rio Grande, (32°2'S, 52°6'W), [no date], coll. [anonymous]—1 female (BMNH); SÃO PAULO, Ipiranga, (23°35'28"S, 46°36'32"W), [no date], coll. [anonymous]—2 females (CEMT, WDEC); same locality, 12.x.1926, coll. F. Ohaus S.—1 male (ZMHB); same locality, 1.ii.1937, coll. Lange de Morretes—1 female (WDEC); Paulínia, (22°42'40"S, 47°6'14"W), xii.1994, coll. P. Arnaud—1 female (CPFA); São Paulo, (23°32'S, 46°37'W), [no date], coll. [anonymous]—2 females (PMOC, ZMHB); Serra do Mar, xii.1934, coll. Zellibor—1 female (CMNC); Sítio Bananal, Guarulhos, (23°28'S, 46°32'W), 9.i.1944, coll. J. Halik—1 male (MZSP); [unspecified locality], [no date], coll. [anonymous]—1 female (lectotype) (ZSMC).

**Natural history.** Unknown.

**Remarks.** Males differs in having the clypeofrontal carina higher, narrower and the pronotal anterior carina tuberculate medially. Parameres (Figs. 70–71) simply rounded apically in dorsal view and with minute raspy tubercles apically.

Variation is restricted to the extent of the metallic markings on head and pronotum as well as the development of the genal transverse carina.

**Nomenclature and taxonomy.** The primary citation for this species, as well as *D. piceus*, are illustrations that were preceding the publication of the text (Evenhuis, 1997). For *Dendropaemon* species, Perty used *Eurysternus* as the generic name which was subsequently corrected to *Dendropaemon* in the text. The original combination for both Perty's name are those on the plates. The publication of the plate no. 8 has not been dated yet. We are here following Scherer (1983) for publication dates: 1830: pp.1–60, pls. 1–12; 1932: pp. 61–124, pls. 13–24; 1833: pp. 125–224, pls. 25–40.

1) Lectotype designation by Scherer (1983).

2) *D. crenatostratus* Felsche, 1909 = *D. viridis* (Perty, 1830), **new synonymy.**

The holotype female of *D. crenatostratus* Felsche, 1909 was compared to the lectotype of *D. viridis* (Perty, 1830) and both specimens are conspecific. Felsche (1909) compared his new species with *D. viridipennis* Laporte, 1831, from which it differ significantly instead of *D. viridis* which he confused with *D. quadratus*.

## ***Dendropaemon (Enicotarsus) Laporte, 1831***

*Enicotarsus* Laporte 1831, *Mag. Zool.* 1: pl. 35 (original description)

*Enicotarsus*: Brullé 1837, In: *Hist. Nat. Ins.*: 302 (diagnosis)

*Enicotarsus*: Castelnau 1840, *Hist. Nat. Ins.* 2: 83 (diagnosis)

*Enicotarsus*: Guérin-Ménéville 1844, *Icon. Règ. anim. Cuv.* III: 80 (comment)

*Enicotarsus*: Agassiz 1846, *Nom. Zool.*: 138 (mention)

*Enicotarsus*: Lacordaire 1856, *Hist. Nat. Ins.* III: 102 (mentioned as synonym)

*Enicotarsus*: Burmeister 1861, *Berl. Ent. Zeit.* 5: 56 (comment)

*Enicotarsus*: Harold 1869, *Cat. Col.* IV: 1020 (mentioned as synonym)

*Enicotarsus*: Gillet 1911, *Col. Cat.* 38: 88 (mentioned as synonym)

*Enicotarsus*: Olsoufieff 1924, *Insecta* 13: 159 (mentioned as synonym)

*Enicotarsus*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 210 (mentioned as synonym)

*Enicotarsus*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (mentioned as synonym)

*Enicotarsus*: Branco 1991, *Ann. Soc. Ent. Fr. (N.S.)* 27: 266 (comment)

*Enicotarsus*: Arnaud 2002, *Col. Monde* 28: 14 (mentioned as synonym)

**Type species:** *Enicotarsus viridipennis* Laporte, 1831; monotypy.

**Diagnosis.** Size moderate. Entire body except elytra black; elytra with metallic sheen. Body strongly



compressed dorsoventrally. Clypeal edge slightly but distinctly emarginate on external side of each clypeal tooth; clypeal teeth more or less triangular. Pronotum only minutely punctate on disc. Elytral base lacking margin. Meso and metatarsi three segmented, first segment elongate, more than three times as long as wide at apex, last segment spiniform, lacing setae apically.

## 20. *Dendropaemon (Enicotarsus) viridipennis* (Laporte, 1831)

(Figs. 20, 72–73, 116, 141, 157)

*Enicotarsus viridipennis* Laporte 1831, *Mag. Zool.* 1: 35 (original description)

*Enicotarsus viridipennis*: Brullé 1837, In: *Hist. Nat. Ins.*: 302 (diagnosis, comment)

*Enicotarsus viridipennis*: Castelnau 1840, *Hist. Nat. Ins.* 2: 83 (diagnosis, distribution)

*Dendropaemon viridipennis*: Harold 1869, *Cat. Col.* IV: 1020 (catalogue)

*Dendropaemon viridipennis*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon viridipennis*: Olsoufieff 1924, *Insecta* 13: 127 (monograph)

*Dendropaemon viridipennis*: Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 90 (identification key, comment)

*Dendropaemon viridipennis*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 270 (monograph)

*Dendropaemon viridipennis*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 490 (identification key, distribution)

*Dendropaemon viridipenne*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon viridipennis*: Lange 1947, *Arq. Mus. Paranaense* 6: 314 (distribution)

*Dendropaemon (D.) viridipennis*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon viridipenne*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (D.) viridipennis*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon (D.) viridipennis*: Vaz-de-Mello & Génier 2009, *Col. Bull.* 63: 365 (biology)

**Type locality.** Goyaz.

**Diagnosis.** The only species in the genus with three-segmented meso and metatarsi and black body with metallic marking restricted to elytra.

**Description.** Male neotype (Fig. 20). **Body.** Body large, length 16.0 mm, maximum width 8.0 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, with green metallic sheen; head black; pronotum black; elytra with uniform green metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine blunt rugulae, transversely tumescent; clypeofrontal carina rather low, approximately 4 times wider than high, arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.9. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.3; disc of pronotum minutely punctate on disc, punctures abruptly changing into fine rugulae on anterior and lateral declivities, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin slightly wider and flat lateral to eye; anterior portion with a strongly tri-sinuous carina produced into an acute transverse tubercle medially; anterior angles surface with fine blunt longitudinal rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae small, well-defined and rather deeply impressed; posterior margin fine, interrupted on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and gradually tapering toward apex, lacking minute carina laterally on apical declivity, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge absent. **Legs.** Profemur posterior surface flat, rather coarsely punctate and glabrous internally, posterointernal margin rather thick, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal

basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured; posterior surface with irregular rugose punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface with irregular punctures and microsculpture, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture and fine punctures. Metatarsus 3-segmented (Fig. 116), first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 72–73). Parameres parallel sided and truncate apically in dorsal view, laterally concave before apex; with minute raspy tubercles apically.

**Measurements** (27 males, 42 females). Length: male 9.0–16.5 (13.5±1.8), female 11.5–18.0 (14.1±1.6) mm.

**Primary type data** (Fig. 141). Neotype male (MNHN) **present designation:** [Goyaz Bresil/ Baer] handwritten; [Ex. Museo/ Thorey]; [WORLD/ SCARAB./ DATABASE/ WSD00016639]; [NEOTYPE/ *Enicotarsus/ viridipennis*/ Laporte, 1831/ dés. Génier & Arnaud, 2014] red card; [*Dendropaemon* ♂/ *viridipennis*/ Laporte, 1831/ dét. Génier & Arnaud, 2009].

**Material examined.** **ARGENTINA:** MISIONES, Loreto, (27°18'22"S, 55°32'10"W), i.1955, coll. F.H. Walz—2 females, 2 males (BDGC, CMNC, GHCM); San Pedro, (26°37'18"S, 54°6'35"W), xi.1936, coll. Zenzes—1 female (CMNC); **BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—7 females, 7 males (BMNH, CPFA, IRSNB, MNHN); BAHIA, Santo Antônio da Barra [= Condeúba], (14°54'S, 41°58'W), xi–xii.1888, coll. Gounelle—1 female (WDEC); [unspecified locality], (12°18'S, 41°29'W), [no date], coll. [anonymous]—1 male (MNHN); DISTRITO FEDERAL, Brasília, (15°47'S, 47°55'W), xii.1992, coll. C. Godinho—1 female, 1 male (CEMT); ESPIRITO SANTO, [unspecified locality], [no date], coll. [anonymous]—1 female (MTD); GOIÁS, Jataí, (17°53'S, 51°43'W), 1895–96, coll. Ch. Pujol—1 female, 1 male (MNHN); same locality, 1898, coll. Ch. Pujol—1 male (MNHN); same locality, i.1976, coll. F.M. Oliveira—1 female (MNRJ); Mineiros, (17°34'43"S, 52°32'32"W), xii.1999, coll. G. Machado—1 female, 1 male (CEMT); Rio Verde, (17°47'50"S, 50°54'0"W), [no date], coll. [anonymous]—1 female (MTD); [unspecified locality], [no date], coll. Baer—1 male (neotype) (MNHN); MATO GROSSO, Cuiabá, (15°35'45"S, 56°5'49"W), [no date], coll. [anonymous]—1 female, 2 males (ZMHB); same locality, [no date], coll. Virmond—1 female (ZMHB); Tangará da Serra, (14°38'S, 57°30'W), 2008, coll. R.J. Silva—1 female (CEMT); MATO GROSSO DO SUL, Aparecida do Taboado, (20°5'20"S, 51°6'10"W), 14.v.2004, coll. E.P. Souza—1 male (MEFEIS); Campo Grande, (20°26'30"S, 54°39'0"W), iii.1986–iii.1987, coll. Bianchin et al.—1 female (CEMT); Pôrto Alegre, (30°3'1"S, 51°10'38"W), [no date], coll. [anonymous]—1 female, 1 male (MTD); MINAS GERAIS, Barbacena, (21°13'35"S, 43°46'27"W), [no date], coll. E.M. Melo—1 female (MNRJ); Fazenda do Riacho Fundo, Campos de Diamantina, xii.1902, coll. E. Gounelle—1 female (MNHN); Ouro Preto, (20°23'S, 43°30'W), 27.xii.1898, coll. F. Ohaus—1 female (SMF); Poços de Caldas, (21°46'25"S, 46°33'42"W), XII.1985, coll. Celso—1 female (COBF); PARANÁ, Carambeí, (24°57'S, 50°6'30"W), x.1945, coll. F. Justus—1 male (CMNC); RIO DE JANEIRO, Rio de Janeiro, (22°57'S, 43°13'W), xi.1987, coll. Nathan M. de Sá—1 female (CEMT); SANTA CATARINA, [unspecified locality], [no date], coll. [anonymous]—3 females, 1 male (CNC, CPFA, IRSNB); SÃO PAULO, Amparo, (22°42'5"S, 46°45'52"W), [no date], coll. [anonymous]—1 female (CPFA); Botucatu, (22°53'26"S, 48°27'19"W), i.1982, coll. G.S. Andrade—1 female (MNRJ); Santo Amaro, (23°39'S, 46°42'W), ii.1962, coll. J. Lane—1 female (MZSP); São José dos Campos, (23°11'S, 45°52'W), [no date], coll. [anonymous]—1 female (MNRJ); São Paulo, (23°32'S, 46°37'W), [no date], coll. [anonymous]—1 female (MTD); Tremembé, (22°57'38"S, 45°32'26"W), [no date], coll. [anonymous]—1 male (MNRJ); [NO DATA]: -, coll. [anonymous]—5 females, 2 males (CPFA, IRSNB, MNHN); **PARAGUAY:** [unspecified locality], [no date], coll. [anonymous]—1 male (IRSNB); CONCEPCIÓN, Horqueta, (23°19'41"S,

57°3'59"W), [no date], coll. [anonymous]—1 male (CAS); CORDILLERA, Compañía Naranjo, 20.xii.2005, coll. C. Aguilar—1 male (WDEC); GUAIRÁ, Villarrica, (25°47'S, 56°27'W), iv.1933, coll. Koller—1 female (ZMHB); ITAPÚA, Puerto Cantera, (27°13'44"S, 55°36'9"W), xii.1956, coll. [illegible]—1 female (CMNC); **URUGUAY**: MONTEVIDEO, Montevideo, (34°51'29"S, 56°10'15"W), [no date], coll. [anonymous]—1 female (MNHN).

**Natural history.** Unknown. Two specimens collected in unbaited pitfall traps, one individual found on the ground and another one collected in a flight interception trap.

**Remarks.** Females differ by their lower and wider clypeofrontal carina and the straighter and less medially tuberculate pronotal anterior carina.

Variation other than size, the tinge and intensity of the elytral metallic sheen will vary from weak bluish to intense green and reddish coppery. A single individual seen with yellowish to reddish metallic sheen on pronotum. All other characters show no or insignificant variation.

**Nomenclature and taxonomy.** See comment under *D. ater* for details on Laporte's type specimens. A specimen from Kirby's collection (OUMNH) labelled by Dejean as "*Enicotarsus viridipennis* Delaporte" is a putative type (pers. comm. F. Vaz-de-Mello). However, because the forebody (head and pronotum) is missing it is considered here as destroyed. Since the original type material of Laporte is considered lost, we are therefore designating a neotype to ensure taxonomic stability. This is necessary as the illustration provided by Laporte show a specimen with green metallic marking on the pronotum and clypeal teeth lacking emargination laterally and correspond to *D. viridis*. The type designation is based on the diagnostic character provided in the original description. Laporte clearly state that the species he is describing has a black pronotum and three-segmented meso- and metatarsi. *Dendropaemon viridis* has distinct green metallic sheen on pronotum and two-segmented meso- and metatarsi. The tarsus illustration provided by Laporte show three segments.

### ***Dendropaemon (Eurypodea) Klages, 1906***

*Eurypodea* Klages **1906**, *Privately Published*: [1] (original description)

*Tetramereia*: Klages **1907**, *Proc. Ent. Soc. Wash.* 8: 141 (original description) **new synonymy**

*Eurypodea*: Felsche **1908**, *Deut. Ent. Zeit.* 1908: 274 (comment taxonomy)

*Eurypodea*: Gillet **1911**, *Col. Cat.* 38: 88 (mentioned as synonym)

*Tetramereia*: Gillet **1911**, *Col. Cat.* 38: 88 (mentioned as synonym)

*Boucomontius* Olsoufieff **1924**, *Insecta* 13: 120 (original description) **new synonymy**

*Eurypodea*: Olsoufieff **1924**, *Insecta* 13: 159 (mentioned as synonym)

*Tetramereia*: Olsoufieff **1924**, *Insecta* 13: 159 (mentioned as synonym)

*Boucomontius*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 296 (monograph)

*Tetramereia*: Janssens **1940**, *Bull. Mus. Roy. Hist. Nat. Belg.* 16: 6 (comment taxonomy)

*Boucomontius*: Janssens **1940**, *Bull. Mus. Roy. Hist. Nat. Belg.* 16: 7 (synonymy)

*Eurypodea*: Janssens **1940**, *Bull. Mus. Roy. Hist. Nat. Belg.* 16: 7 (comment taxonomy)

*Tetramereia*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (mentioned as synonym)

*Eurypodea*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Boucomontius*: Martínez **1944**, *Rev. Arg. Ent.* 2: 34 (comment taxonomy)

*Tetramereia*: Janssens **1954**, *Vol. Jub. V. Van Stralen*: 974 (comment taxonomy)

*Boucomontius*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (mentioned as synonym)

*Eurypodea*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (mentioned as synonym)

*Tetramereia*: Edmonds **1994**, *Nat. Hist. Mus. LA Co., Cont. Sc.* 443: 17 (identification key)

*Tetramereia*: Vaz-de-Mello & Génier **2009**, *Coll. Bull.* 63: 364 (biology)

**Type species:** *Eurypodea fredericki* Klages. 1906; monotypy.

**Diagnosis.** Size moderate. Habitus oval in dorsal view; lacking metallic sheen on head, pronotum and elytra, few individuals with faint metallic sheen on pronotum. Body convex dorsally. Clypeal lacking emargination on external side of each clypeal tooth; clypeal teeth triangular. Pronotum with more or less coarse and large punctures on disc, punctures forming rugulae anteriorly; anterior margin unmodified lateral to eyes; lateral fossae rounded, simple. Elytral base lacking margin. Meso and metatarsi similar in shape, four segmented, metatarsal first segment as long as wide at apex to wider than long, last segment more or less triangular in frontal view, with setae apically.

**Remarks.** At this time we are not able to fully resolve the taxonomy of this subgenus. The external morphology, especially microsculpture, punctation and degree of development and impression of elytral striae,

convexity of elytral interstriae, shape and development of cephalic and pronotal carina, which are in other species of the genus reliable characters fail to provide insight for *Eurypodea*. Therefore, we keep a more conservative approach and revalidate *D. fredericki* and consider that the 49 specimens at hand belong to either one of the previously described species. Unfortunately, the holotype of *D. fredericki* is a female and unless males from the same or nearby locality in Venezuela that correspond to it are collected it might not be possible to be sure of the identity of this species. The aedeagus of *D. fredericki* illustrated for the species is from a male collected in French Guiana and is only tentatively identified as such. In general, all the specimens collected from the Guiana shield have parameres more robust in shape and the specimens from cerrado have more slender and laterally compresses apical portions.

**Nomenclature and taxonomy.** An undated manuscript note from the hand of Klages attached to copies of the 1906 and 1907 publications is deposited in the library of the United States National Museum and reads:

“A Correction and Explanation. The following two papers are descriptions of the same specimen, but that published in the Proceedings of the Entomological Society of Washington is the one that must fall. This unintentional and unfortunate duplication of the description under another generic name, and with some minor change occurred as follow: The paper, as stated in a footnote, was proposed early in 1906 and accepted for publication by the Entomological Society of Washington. Before it could be published, the gentleman having charge of the manuscript was ordered to Guatemala and the paper could not be found. So, in order to avoid an indefinite delay, its publication was withdrawn by letter and another manuscript prepared and published at the author’s expense, using the more appropriate generic name *Eurypodea*\*, this change being advisable on account of the existence of an allied genus from Africa, in which the tarsi are also tetramerous. Some months later the misplaced manuscript was found and, forgetful of my instructions, the Society had it published in its Proceedings. Hence the preferable name, *Eurypodea*, is the one that must stand. Edward A. Klages

\* From the Greek, meaning wide foot.”

The nomenclatural problem concerning the validity of *Tetramereia* and *Eurypodea* was first discussed by Janssens (1940):

“Klages avait tout d’abord nommé ce genre *Eurypodea*, mais sa première description, qui était destinée à être publiée à la Société Entomologique de Washington, fut retirée par l’auteur et imprimée sur le recto non paginé d’un feuillet séparé ne faisant partie d’aucune publication régulière. Nous avons sous les yeux un exemplaire de ce feuillet appartenant au British Museum; il nous a été communiqué par notre honoré Collègue M. G.-J. Arrow, ce dont nous le remercions encore. Ce document rarissime ne présente pas le caractère d’universalité qu’on exige des publications scientifiques et ne pouvant être obtenu par la voie ordinaire du commerce, la description qu’il contient ne peut être considérée comme valablement publiée. Klages refit d’ailleurs la description de ce genre en 1907, mais il substitua à *Eurypodea* le nom de *Tetramereia*”.

Edmonds (1972), add to Janssens (1940) argumentation:

“Klages (1906) proposed the name *Eurypodea fredericki* (n. gen., n. sp.) in a single page article printed at his own expense. A series of errors resulted in the publication of another description of the same species proposing the name *Tetramereia frederickii* (Klages, 1907). Both descriptions were based on the same specimen. Olsoufieff (1924: 120), suspecting the duplication, nevertheless proposed still another genus name, *Boucomontius*, for *Dendropaemon convexum* Har., later found to be a senior synonym of *T. frederickii*. I have elected for now to continue usage of the name *Tetramereia* for two reasons: 1) I have judged *Eurypodea* does not comply with Articles 7 and 8 (Chapter IV, Criteria of Publication) of the International Code of Zoological Nomenclature and, hence, is unavailable (Art. 10) (see also Janssens, 1940); 2) *Tetramereia* is the name now of common usage. Nevertheless, I have requested that the International Commission on Zoological Nomenclature render an opinion on the availability of the name *Eurypodea*.” The opinion request to the ICZN was not sent (Dave Edmonds, pers. comm.).

Our interpretation is that Klages’ 1906 publication meets the minimum requirement (nonetheless very minimal!) of the code (Article 8) for the availability of the name *Eurypodea*. The argument of rarity and commercial availability of a work, used by Janssens, is not taken into consideration by the code. Evidences rather suggest that the description was printed (offset) in multiple copies and distributed in 1906, and available from public libraries and consequently has priority over the redescription published under a different name in 1907. A copy of the publication was received in 1906 by the library of the British Museum of Natural History (now The Natural History Museum) in London and was indexed by the Zoological Record for that year. At least another copy



was also deposited in the Smithsonian library in Washington, DC as shown on the library stamp on the facsimile obtained through the courtesy of David Edmonds. Therefore, *Tetramereia* Klages, which was published in 1907 is an objective junior synonym of *Eurypodea* Klages, 1906, as both name are based on the same holotype. *Eurypodea* and *Tetramereia* were first proposed synonyms of *Dendropaemon* by Gillet (1911) in the *Coleopterorum Catalogus*. The name *Eurypodea* Klages is available and used here for the subgenus comprising the following two species.

## 21. *Dendropaemon (Eurypodea) convexus* Harold, 1869

(Figs. 21, 74–75, 117, 142, 158)

*Dendropaemon convexus* Harold **1869**, *Col. Hefte* 5: 99 (original description)

*Dendropaemon convexus*: Harold **1869**, *Cat. Col.* IV: 1020 (catalogue)

*Dendropaemon convexus*: Felsche **1908**, *Deut. Ent. Zeit.* 1908: 274 (comment)

*Dendropaemon convexus*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Boucomontius convexus*: Olsoufieff **1924**, *Insecta* 13: 120 (monograph)

*Boucomontius convexus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 296 (monograph)

*Tetramereia convexus*: Janssens **1940**, *Bull. Mus. Roy. Hist. Nat. Belg.* 16: 7 (comment taxonomy)

*Eurypodea convexus*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Tetramereia convexus*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Tetramereia convexus*: Vaz-de-Mello & Génier **2009**, *Col. Bull.* 63: 364 (biology)

*Tetramereia convexus*: Ampudia Gatty et al. **2012**, *Insecta Mundi* 0270: 1 (comment, distribution)

**Type locality.** Circa Poço Bonito (21°19'47"S, 44°58'13"W), Ingaí, Lavras, Minas Gerais, Brasil.

**Diagnosis.** Differs from all other species in the genus by the four-segmented meso- and metatarsi combined with the globose body shape and entirely dark coloration, some individual show faint metallic sheen on pronotum. Separated from *D. fredericki* by the more apically pointed parameres in lateral view and distinctly concave and apical portion in dorsal view. This species is known from cerrado in Brazil and a single record from Amazonian Bolivia.

**Description.** Male neotype (Fig. 21). **Body.** Body moderately large, length 12.5 mm, maximum width 7.0 mm; body elongate-oval in dorsal view; dorsum convex. **Color.** Dorsal surface dark reddish brown to black, glossy, with weak coppery sheen on some of the surface; head black; pronotum with faint coppery metallic sheen along anterior and posterior margin and posterior portion of disc; elytra dark reddish brown to black; ventrum dark brown to black; pygidium dark reddish brown; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth more or less rounded; clypeal median emargination v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a well-defined short arcuate carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse rugulae; clypeogenal suture ill-defined, bluntly carinate internally on anterior half; genal surface with small and blunt irregular tubercles, approximately flat; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly trilobate in frontal view; eyes small in dorsal view, interocular ratio 9.5. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum coarsely punctate basally, punctures changing into fine rough rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a nearly straight and slightly tuberculate medially transverse carina bordering anteriorly a weakly impressed concavity; anterior angles surface with fine rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, simple; lateral portions slightly explanate; pronotal basal fossae absent; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra slightly transverse, elytral combined width/length ratio 1.2; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide, not bordered by a minute carina laterally, evenly impressed throughout, elytral striae 5 similar to 4 on disc, striae punctures minute, adjacent striae edge encroaching on interval, stria 1 ill-defined apically; interstriae slightly convex, finely punctate throughout, feebly microsculptured. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, y-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posteroventral margin rather thin, evenly developed, internal edge wide, with a contiguous row of setae along anteroventral edge and few scattered long setae on

anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle unmodified; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface lacking punctures externally to median carina, surface glossy, with a single continuous setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge broadly arcuate in anterior view, anteroapical row of setae complete, more or less regularly spaced; apicoanterior edge angular, lacking distinct emargination internally; external edge more or less flat, with irregular setiferous punctures and microsculpture. Mesotarsus similar in shape to metatarsus, 4-segmented, first segment transverse, wider than length along midline. Metafemur elongate, internal and lateral edges slightly but distinctly arcuate in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on median half. Metatibia robust, regularly widening from base to apex, anterior surface with distinct row of setae, surface glossy basally and slightly irregular apically, metatibial posterior surface concave between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 4-segmented (Fig. 117), first segment transverse, wider than length along midline, with anterointernal carina well defined and reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium moderately punctate on disc. **Male genitalia** (Figs. 74–75). Parameres dentate in dorsal view; with minute raspy tubercles apically.

**Measurements** (13 males, 10 females). Length: male 10.5–14.0 (12.7±1.0), female 9.0–15.0 (12.8±1.5) mm.

**Primary type data** (Fig. 142). Neotype male (CEMT>ZMHB) **present designation:** [BRASIL: MinasGerais/ Ingaí-Lavras, próx./ Poço Bonito XII-2002/ F Z Vaz-de-Mello leg]; [WORLD/ SCARAB./ DATABASE/ WSD00021623]; [NEOTYPE/ *Dendropaemon/ convexus/* Harold, 1869/ dés. Génier & Arnaud, 2014] red card; [*Dendropaemon* ♂/ *convexus/* Harold, 1869/ dét. Génier & Arnaud, 2013].

**Material examined.** **BOLIVIA:** COCHABAMBA, Villa Tunari, elev. 325 m (16°59.642'S, 65°26.103'W), x–xi.2000, coll. H. Heider—1 female (CMNC); **BRAZIL:** DISTRITO FEDERAL, Campus UnB, Brasília, (15°50'41"S, 48°6'0"W), 10.iii.1999, coll. Y.S. Pires—1 male (CEMT); GOIÁS, Goiatuba, (18°0'40"S, 49°22'10"W), ii.1947, coll. J. Guérin—1 female, 2 males (CMNC); same locality, i.1952, coll. P. Pereira—1 male (CMNC); Km 14 BR-BH, Luziânia, (16°15'S, 47°56'W), 28.xi.1975, coll. Bello—1 male (CEMT); MINAS GERAIS, Araguary, (18°38'S, 48°11'W), [no date], coll. [anonymous]—1 female (CMNC); same locality, iii.1930, coll. R. Spitz—1 female (CMNC); same locality, i.1970, coll. H. Martínez—1 female (CMNC); Araxá, (19°35'36"S, 46°56'27"W), xi.1965, coll. [anonymous]—1 specimen (CPFA); B. Serra, Bello Horizonte, [no date], coll. Penna—1 male (CEMT); circa Poço Bonito, Ingaí, Lavras, (21°19'47"S, 44°58'13"W), xi.2002, coll. F. Z. Vaz de Mello—1 female (CEMT); same locality, xii.2002, coll. F. Z. Vaz de Mello—1 female, 1 male (neotype) (CEMT); Escola Superior de Agricultura de Lavras, Lavras, (21°13'58"S, 44°59'36"W), xi–xii.2001, coll. F. Z. Vaz de Mello—1 female (CEMT); same locality, ii.2008, coll. F. Vaz de Mello—1 female (CEMT); same locality, ii.2002, coll. F. Z. Vaz de Mello—1 male (CEMT); same locality, 27.iii.1994, coll. F. Frieiro-Costa—1 female (CEMT); Fazenda Pontinha, Cordisburgo, elev. 700 m (19°8'53"S, 44°12'1"W), xii.1993, coll. F. Z. Vaz de Mello—1 male (CEMT); same locality, i.1994, coll. F.Z. Vaz de Mello—1 male (CEMT); same locality, i.1999, coll. F. Vaz de Mello—1 male (CEMT); Lavras, (21°14'45"S, 44°59'59"W), 8.iv.2004, coll. V. Elias—1 male (CEMT); same locality, 20.i.2008, coll. Mr.R. Rocha & D.H.T. Takahashi—1 male (CEMT); SÃO PAULO, Jundiaí, (23°13'S, 46°53'56"W), i.1961, coll. W.C.A. Bokermann—1 male (CMNC).

**Natural history.** For biology see Vaz de Mello & Génier (2009)

**Remarks.** Females are extremely similar to males externally, the shape of the anterior pronotal and cephalic carina are variable and cannot be used to distinguish sexes. Dissection is the only reliable way to differentiate the sexes for species of the subgenus *Tetramereia*.

**Nomenclature and taxonomy.** Harold's type of *Dendropaemon convexus* could not be located in the Museum für Naturkunde in Berlin where Harold state it is deposited. Additionally, the collection of the Paris museum where several of Harold's types are located did not yield potential type specimens. The original type specimen is therefore presumed lost. In order to fix the identity of this species, the designation of a neotype is required. The original description states that the type was collected in "San João del Rey" [=São João del Rei, Minas Gerais, Brazil]. No specimens from this locality were available in the material studied. We selected a male specimen that matches Harold's description and was collected 90 km from the type locality.

## 22. *Dendropaemon (Eurypodea) fredericki* (Klages, 1906)

(Figs. 22, 76–77, 118, 143, 158)

*Eurypodea fredericki* Klages 1906, *Priv. Publ.*: [1] (original description)

*Tetramereia frederickii*: Klages 1907, *Proc. Ent. Soc. Wash.* 8: 141 (redescription)

*Eurypodea Fredericki*: Felsche 1908, *Deut. Ent. Zeit.* 1908: 274 (synonymy)

*Dendropemon Fredericki*: Gillet 1911, *Col. Cat.* 38: 88 (mentioned as synonym)

*Eurypodea Fredericki*: Olsoufieff 1924, *Insecta* 13: 120 (comment taxonomy)

*Tetramereia Frederickii*: Janssens 1940, *Bull. Mus. Roy. Hist. Nat. Belg.* 16: 7 (mentioned as synonym)

[*Tetramereia*] *frederickii*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (mentioned as synonym)

*Tetramereia fredericki*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

**Type locality.** Suapure, Caura Valley, Venezuela.

**Diagnosis.** Differs from all other species in the genus by the four-segmented meso- and metatarsi combined with the globose body shape and entirely dark coloration. Separated from *D. convexus* by the shape of parameres which are much wider apically in lateral view and simply convex in dorsal view and by its larger average size. This species is seemingly restricted to the Guiana Shield.

**Description.** Female holotype (Fig. 22). **Body.** Body moderately large, length 14.0 mm, maximum width 8.5 mm; body elongate-oval in dorsal view; dorsum convex. **Color.** Dorsal surface dark reddish brown to black, glossy, lacking metallic sheen; ventrum reddish brown to dark brown; pygidium reddish brown; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth more or less rounded; clypeal median emargination narrowly v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse rugulae; clypeogenal suture well-defined, rather sharply carinate internally; genal surface with fine blunt transverse rugulae, lacking distinct transverse carina, concave laterally and convex internally; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly trilobate in frontal view; eyes small in dorsal view, interocular ratio 7.8. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum coarsely punctate basally, punctures changing into fine rough rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a nearly straight and slightly tuberculate medially transverse carina bordering anteriorly a weakly impressed concavity; anterior angles surface with fine rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, simple; lateral portions slightly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra slightly transverse, elytral combined width/length ratio 1.3; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide, not bordered by a minute carina laterally, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures ill-defined, adjacent stria edge encroaching on interval, stria 1 ill-defined apically; interstriae slightly convex, finely punctate throughout, feebly microsculptured. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thin, evenly developed, internal edge wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface with irregular ill-defined punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle unmodified; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface lacking punctures externally to median carina, surface finely and irregularly microsculptured, with a single continuous setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge broadly arcuate in anterior view, anteroapical row of setae complete, more or less regularly spaced; apicoanterior edge angular, lacking distinct emargination internally; external edge more or less flat, with irregular setiferous punctures and microsculpture. Mesotarsus similar in shape to metatarsus, 4-segmented, first segment transverse, wider than length along midline. Metafemur elongate, internal and lateral edges slightly but distinctly arcuate in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on median half. Metatibia robust, regularly widening from base to apex, anterior surface with distinct row of setae, surface glossy basally and slightly irregular apically,

metatibial posterior surface concave between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 4-segmented (Fig. 118), first segment transverse, wider than length along midline, with anterointernal carina well defined and reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, longer than segment 6 along midline; pygidium moderately punctate on disc.

**Measurements** (7 males, 17 females). Length: male 11.5–16.0 (14.0±1.5), female 12.5–16.5 (14.2±1.1) mm.

**Primary type data** (Fig. 143). Holotype female (CUIC): [Suapure VENEZ/ Caura River/ July 5 1899/ E.A.Klages] partly handwritten; [Type!/ E.A.Klages] handwritten; [Eurypodea/ Fredericki E.A.Klages] handwritten, red border; [HOLOTYPE/ Cornell U./ No.2949] red card; [WORLD/ SCARAB./ DATABASE/ WSD00021640]; [HOLOTYPE ♀/ Tetramereia/ frederickii/ Klages/ vid. F. Génier, 2013] handwritten.

**Material examined.** **BRAZIL:** PARÁ, IPEAN [=Instituto de Pesquisas e Experimentação Agropecuárias do Norte], Belem, (1°26'32"S, 48°25'59"W), xi.1980, coll. P. Arnaud—1 female (CPFA); Tucuruí, (3°46'26"S, 49°41'19"W), xii.1983, coll. [anonymous]—1 female (CEMT); **GUYANE FRANÇAISE:** Cacao, (4°35'N, 52°28'W), X.2008, coll. [anonymous]—2 females (FGIC); environs de Cacao, (4°35'N, 52°28'W), i.2009, coll. P. Bonin—2 females (CPFA); Régina, (4°19'N, 52°8'W), ix.2008, coll. [anonymous]—1 female (FGIC); same locality, ii.2009, coll. [anonymous]—1 male (FGIC); Réserve naturelle des Nouragues, (4°19'N, 52°22'W), 3.v.2003, coll. F. Feer—1 male (CEMT); same locality, 7.vii.2008, coll. F. Feer—1 female (CEMT); Saül, (3°37'N, 53°12'W), vii.1978, coll. P. Arnaud—1 female, 1 male (CPFA); same locality, i.1977, coll. T. Porion—1 male (CPFA); [unspecified locality], [no date], coll. [anonymous]—7 females, 3 males (CPFA); **VENEZUELA:** BOLIVAR, Suapure, Río Caura, (7°14'N, 65°10'W), 5.vii.1899, coll. E.A. Klages—1 female (holotype) (CUIC).

**Natural history.** Unknown, one specimen collected using flight interception trap and a second hand collected in primary forest.

**Remarks.** The presumed males studied differs from the female by the slightly more elevated and thicker clypeofrontal carina. Ventrally the abdominal segment 7 is as long as segment 6 along midline (approximately 1.5 as long in female), in addition segments 5–7 are distinctly sulcated basally on each side of midline. Parameres (Figs. 76–77) stout in lateral view, more or less rounded in dorsal view; with dense raspy tubercles apically.

**Variation.** The holotype female differs from the specimens collected in French Guiana studied by the distinctly sericeous aspect of elytral intervals, smaller size and much coarser and regular punctation of the metatibial apical edge and first meso and metatarsal segment anterior surface. See also remarks under *D. convexus*.

### ***Dendropaemon (Glaphyropaemon) Génier & Arnaud, new subgenus***

**Type species:** *Dendropaemon angustipennis* Harold, 1869; present designation.

**Description.** Size small to moderate. Habitus elongated, parallel sided; with metallic sheen on head pronotum and elytra. Body strongly compressed dorsoventrally. Clypeal edge distinctly emarginate on external side of each clypeal tooth; clypeal teeth acutely angular to ogival. Pronotum with some fine punctures on disc; anterior margin unmodified, convex lateral to eyes, if appearing flat lateral to eyes then lateral fossae simply rounded and concave. Elytral base lacking margin. Meso and metatarsi similar in shape, three segmented, approximately two times as long as wide at apex, last segment spiniform, lacking setae apically.

**Etymology.** “*Glaphyros*” (smoothed, polished) a Greek adjective pertaining to the overall aspect of the tegument of the species included in the subgenus, with the suffix “*paemon*” to keep the naming scheme similar to the genus. Gender masculine.

### **23. *Dendropaemon (Glaphyropaemon) angustipennis* Harold, 1869**

(Figs. 23, 78–79, 119, 144, 158)

*Dendropaemon angustipennis* Harold **1869**, *Col. Hefte* 5: 99 (original description)

*Dendropaemon angustipennis*: Harold **1869**, *Cat. Col.* IV: 1020 (catalogue)

*Dendropaemon angustipennis*: Waterhouse **1891**, *Ann. Mag. Nat. Hist.* 6 8: 57 (redescription)

*Dendropaemon angustipennis*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)



*Dendropaemon angustipennis*: Olsoufieff **1924**, *Insecta* 13: 161 (mentioned as synonym)  
*Dendropaemon angustipennis*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 277 (monograph)  
*Dendropaemon silvanus* Blut **1939**, *Arch. Naturg. (N.F.)* 8: 277 (nomen nova) **new synonymy**  
*Dendropaemon angustipenne*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (mentioned as synonym)  
*Dendropaemon silvanum*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropaemon angustipennis*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)  
*Dendropaemon silvanum*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)  
*Dendropaemon angustipennis*: Arnaud **1982**, *Rev. Fr. Ent. (N.S.)* 4: 115 (lectotype designation)  
*Dendropaemon angustipenne*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon silvanum*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon (D.) angustipennis*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon (D.) silvanus*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon ca. bahianus*: Hamel-Leigue et al. **2009**, *Kempffiana* 5: 49 (faunistic)

**Type locality.** Ega [= Tefé].

**Diagnosis.** The small size combined with the simply rounded lateral pronotal depressions combined with the presence of distinct metallic sheen and the absence of tubercle on anterior pronotal margin will separate this species from all others in the genus.

**Description.** Female lectotype (Fig. 23). **Body.** Body small, length 10.0 mm, maximum width 5.0 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface black, glossy, with blue metallic sheen; head with faint bluish metallic sheen throughout; pronotum with blue metallic sheen, except on anterior portion of disc; elytra with uniform blue metallic sheen; ventrum dark brown to black; pygidium with greenish metallic sheen; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth acutely triangular; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt irregular tubercles, transversally and shallowly sulcate on posterior half; clypeofrontal carina low, more than 6 times wider than high, slightly arcuate in dorsal view, lacking carina or tubercle, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.2. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum finely punctate basally, punctures becoming larger anteriorly, with a sharply defined narrow longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a broad and fine tectiform carina tuberculate medially; anterior angles surface with rough punctures, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae very small and rounded; posterior margin ill-defined, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, distinctly more impressed basally, elytral striae 5 similar to 4 on disc, stria punctures ill-defined basally becoming larger and deeper toward apex, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe angularly produced anteromedially, ventral ridge ill-defined, v-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thick, evenly developed, internal edge rather narrow, with a contiguous row of setae along anterointernal edge, remaining surface finely punctate along setae. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae,

surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented (Fig. 119), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium finely punctate on disc.

**Measurements** (51 males, 41 females). Length: male 8.0–12.5 (9.9±0.9), female 7.0–12.5 (9.6±1.2) mm.

**Primary type data** (Fig. 144). Lectotype female (MNHN): [Ega] handwritten; [Ex.Musæo/ E.Harold]; [Ega/ D./ angustipennis/ t. Harold] handwritten, red border; [Museum Paris/ ex Coll./ R. Oberthur] green card; [Dendropaemon ♀/ angustipennis Har/ Lectotype/ P.ARNAUD DET 1982] handwritten, red border; [WORLD/ SCARAB./ DATABASE/ WSD00002073].

**Material examined.** **BOLIVIA:** BOLIVIA: PANDO, Reserva San Sebastian Tahuamanu, Cobija, elev. 250 m (11°24'27"S, 69°1'4"W), 20.xii.2003, coll. Mann & Hamel—1 male (OUMNH); **BRAZIL:** ACRE, Fazenda Catuaba, Rio Branco, (10°4'S, 67°37'W), ii.1997, coll. F. Z. Vaz de Mello—1 female (CEMT); AMAZONAS, Ega [=Tefê], (3°22'S, 64°42'W), [no date], coll. [anonymous]—4 females, 3 males (BMNH, MNHN); Manaus, Rio Negro, (3°6'48"S, 60°1'31"W), [no date], coll. [anonymous]—1 female (CPFA); Massanary [= Maçauary], (4°8'S, 57°35'W), [no date], coll. Dr. Hahnel—1 male (MNHN); Mujo, [no date], coll. [anonymous]—1 female (CPFA); Natal, [no date], coll. [anonymous]—1 male (MNHN); Reserva Florestal Adolpho Ducke, 26 km NE Manaus, (2°57'S, 59°57'W), 1995–1996, coll. [anonymous]—3 females, 1 male (BMNH); same locality, iii.1995, coll. M.G.V. Barbosa—1 male (CEMT); same locality, vii.1995, coll. M.G.V. Barbosa—1 male (CEMT); Rio Parauary, (4°36'S, 57°47'W), 15.iii.1937, coll. Zellibor-Hauff—1 male (CMNC); MATO GROSSO, Fazenda Continental M1 T1 P6, Município Sinop, 22–24.xi.2009, coll. L.R. Silva & R.L. Silva—1 female (CEMT); Fazenda São Nicolau (floresta prim.), Município Cotriguaçu, elev. 250 m (9°49'17"S, 58°16'9"W), 10.xii.2009, coll. F. Z. Vaz de Mello—1 female (CEMT); Fazenda São Nicolau (mata da prainha), Município Cotriguaçu, (9°51'57"S, 58°13'36"W), 5.x.2009, coll. F. Z. Vaz de Mello—3 males (CEMT); same locality, 17.x.2009, coll. F. Z. Vaz de Mello—1 female (CEMT); Fazenda São Nicolau (mata nordeste), Município Cotriguaçu, (9°50'25"S, 58°15'9"W), 5.x.2009, coll. F. Z. Vaz de Mello—1 female, 3 males (CEMT); same locality, 12.x.2009, coll. F. Z. Vaz de Mello—1 male (CEMT); same locality, 17.x.2009, coll. F. Z. Vaz de Mello—1 female, 3 males (CEMT); Fazenda São Nicolau (mata norte), Município Cotriguaçu, (9°49'19"S, 58°15'51"W), 10.xii.2009, coll. F. Z. Vaz de Mello—2 males (CEMT); Fazenda São Nicolau (Talhão 66), Município Cotriguaçu, (9°50'11.5"S, 58°15'58.24"W), 8.xi.2010, coll. M.S. Gigliotti—1 female (CEMT); Fazenda São Nicolau, Município Cotriguaçu, (9°49'8"S, 58°15'40"W), 19–24.x.2012, coll. F. Z. Vaz de Mello—1 female (CEMT); São José do Xingu, (10°48'S, 52°44'W), x.1948, coll. Dirings—1 female (MZSP); PARÁ, Env. Santarem, (2°27'S, 54°43'W), xii.1999, coll. M. Joss—1 male (CPFA); Estação de pesquisas Pinkaití, Area Indígena Kayapo, Redenção, (7°46'S, 51°58'W), x.1999, coll. P.Y. Scheffler—2 males (CEMT); same locality, xi.1999, coll. P.Y. Scheffler—1 male (CEMT); same locality, 24.x.1999, coll. P.Y. Scheffler—1 male (CEMT); Monte Cristo, Rio Tapajós, (4°7'S, 55°38'W), [no date], coll. J.F. Zikán—1 male (CEMT); Município Redenção, (7°46'S, 51°58'W), xi.1998, coll. P. & T. Scheffler—1 male (CEMT); [unspecified locality], [no date], coll. [anonymous]—1 female (BMNH); **COLOMBIA:** PUTUMAYO, Villagarzón, elev. 400–600 m (1°1'46"N, 76°36'59"W), 30.v.1993, coll. M. Cooper—1 female (BMNH); **ECUADOR:** ORELLANA, Estación Científica Yasuní (PUCE), elev. 250 m (0°40'32"S, 76°21'19"W), 20.ii.2002, coll. F. Falconí—1 female (QCAZ); same locality, 12–24.vii.2008, coll. A. Tishechkin—1 female (CMNC); Estación de Biodiversidad Tiputini (USFQ), Parque Nacional Yasuní, (0°38'S, 76°9'W), ix.2000, coll. D. Inward—1 male (BMNH); SUCUMBÍOS, Cuyabeno, (0°15'S, 75°54'W), iv.1986, coll. G. Onore—1 male (AFIC); PERU: CUZCO, Samiri, Camisea, La Convención, elev. 397 m (11°38'4.6"S, 73°3'44.5"W), 16.vii.2013, coll. V. Borda—1 female (MUSM); MADRE DE DIOS, Centro de Investigación y Capacitación Río Los Amigos [=CICRA], elev. 250 m (12°34'10"S, 70°6'1"W), 2005, coll. T. Larsen—5 females, 5 males (AFIC); Jorge Chavez, Río Tambopata, elev. 230 m (12°38'59"S, 69°6'24"W), 25.ix.1999, coll. T. Larsen—1 female (AFIC); same locality, 25–26.ix.1999, coll. T. Larsen—1 male (AFIC); same locality, 27.ix.1999, coll. T. Larsen—1 female (AFIC); same locality, 27–28.ix.1999, coll. T. Larsen—1 female (AFIC); same locality, 28–29.ix.1999, coll. T. Larsen—1 female (AFIC); same locality, 29.ix.1999, coll. T. Larsen—1 male (AFIC); same locality, 29–30.ix.1999, coll. T. Larsen—1 male (AFIC); same locality, 30.ix.–1.x.1999, coll. T. Larsen—2 males (AFIC); same locality, 1.x.1999, coll. T. Larsen—1 female (AFIC); Limón camp, Río Palma Real Grande, (12°32'20"S, 68°51'40"W), x.1999, coll. T. Larsen—1

male (AFIC); same locality, 7–8.x.1999, coll. T. Larsen—1 female (AFIC); same locality, 9–10.x.1999, coll. T. Larsen—3 males (AFIC); same locality, 10–11.x.1999, coll. T. Larsen—1 male (AFIC); same locality, 11–12.x.1999, coll. T. Larsen—1 female, 2 males (AFIC); Limón, Río Palma Real Grande, elev. 320 m (12°32'20"S, 68°51'40"W), 8–9.x.1999, coll. T. Larsen—1 male (AFIC); same locality, 10–11.x.1999, coll. T. Larsen—1 male (AFIC); same locality, 12–13.x.1999, coll. T. Larsen—2 females (AFIC); Oculito camp, Río Patuyacu, elev. 400 m (12°39'S, 68°55'33"W), 24.iv.1999, coll. T. Larsen—1 female (AFIC); same locality, 1–2.ix.1999, coll. T. Larsen—1 female (AFIC); Río Amiguillos, elev. 260 m (12°22'25.4"S, 70°22'13.2"W), 5.x.2000, coll. T. Larsen—1 female (AFIC); Transect along highway, elev. 250–300 m (12°15'S, 68°59'W), ii–iii.2009, coll. T. Larsen—1 female (AFIC); UCAYALI, Abujao, Calleria, Coronel Portillo, elev. 243 m (8°19'22.35"S, 73°43'39.3"W), 25.iv.2013, coll. L. Huerto—1 female, 1 male (MUSM); Camp Kinteroni, Alto Rio Sepa, 29.5 km NW Nuevo Mundo, elev. 736 m (11°23'1.14"S, 73°24'47.87"W), 20–24.i.2010, coll. J. Grados—1 female (MUSM); [UNSPECIFIED COUNTRY]: Amazon, [no date], coll. [anonymous]—1 female (IRSNB).

**Natural history.** Approximately half of specimens were collected using flight intersection traps. A single specimen was collected in a pitfall trap baited with banana and another from a pitfall trap baited with human feces. A specimen was found 12 centimeters underground surface.

**Remarks.** Meso and hyperthelic males have the cephalic carina higher and trapezoidal in frontal view, the anterior pronotal carina present a median tubercle larger and transverse in shape and the surface is depressed on each side of median tubercle anteriorly. Parameres (Figs. 78–79) are sharply carinate laterally before apex in dorsal view.

Variation occurs mostly in size and color. The tinge of the metallic sheen is extremely variable and will vary from reddish coppery, dark coppery, green to blue. The extent of the black area on pronotum is also variable, in some individuals only the anterior pronotal carina will be black and in some others the anterior half of the pronotal disc is black.

**Nomenclature and taxonomy.** *D. silvanus* Blut, 1939 = *D. angustipennis* Harold, 1869, **new synonymy**. Blut (1939) create the name *D. silvanus* as a “nom. nov.” for the taxon *D. angustipennis* sensu Waterhouse, 1891 (nec Harold, 1869). We examined two specimens of *D. angustipennis* seen by Waterhouse from the BMNH collection and we must conclude that, unlike Blut statement, they are conspecific with *D. angustipennis* Harold.

## 24. *Dendropaemon (Glaphyropaemon) bahianus* Harold, 1868

(Figs. 24, 80–81, 120, 145, 158)

*Dendropaemon bahianus* Harold **1868**, *Col. Hefte* 3: 83 (original description)

*Dendropaemon bahianus*: Harold **1869**, *Cat. Col. IV*: 1020 (catalogue)

*Dendropaemon lobatus* Waterhouse **1891**, *Ann. Mag. Nat. Hist.* 6 8: 58 (original description) **new synonymy**

*Dendropaemon tenuitarsis* Felsche **1909**, *Deut. Ent. Zeit.* 1909: 758 (original description) **new synonymy**

*Dendropaemon bahianus*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon lobatus*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon tenuitarsis*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon bahianus*: Olsoufieff **1924**, *Insecta* 13: 131 (monograph)

*Dendropaemon lobatus*: Olsoufieff **1924**, *Insecta* 13: 161 (synonymy)

*Dendropaemon lobatus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 278 (monograph)

*Dendropaemon batrachites* Blut **1939**, *Arch. Naturg. (N.F.)* 8: 280 (original description) **new synonymy**

*Dendropaemon tenuitarsis*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 285 (monograph)

*Dendropaemon bahianus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 295 (monograph)

*Dendropaemon bahianum*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon batrachites*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon lobatum*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon tenuitarse*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon (Coprophanæoides) bahianus*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon (D.) lobatum*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon batrachites*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon tenuitarsis*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon bahianus*: Arnaud **1982**, *Rev. Fr. Ent. (N.S.)* 4: 115 (type data)

*Dendropaemon bahianum*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon lobatum*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)



*Dendropaemon (Coprophanaeoides) bahianus*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon (D.) batrachites*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon (D.) lobatus*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon (D.) tenuitarsis*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon bahianum*: Monaghan et al. **2007**, *Mol. Phyl. Ev.* 45: 682 (phylogeny)

**Type locality.** Bahia.

**Diagnosis.** The configuration of the pronotal margin lateral to the eyes will separate this species from all others in the genus. In *D. bahianus* the margin is convex and similar in width to remaining anterior portion of margin and the posterior surface along the margin is deeply furrowed, making the internal marginal edge sharp.

**Description.** Male lectotype (Fig. 24). **Body.** Body small, length 10.0 mm, maximum width 5.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, with blue and green metallic sheen; head black along anterior margin, with blue and green metallic sheen on remaining surface; pronotum with blue metallic sheen except on small areas along anteromedian carina and adjacent to lateral fossae; elytra with uniform blue metallic sheen; ventrum dark brown to black; pygidium with greenish metallic sheen; legs dark reddish brown to black. **Head.** Clypeus semicircular, anterior portion slightly upturned; clypeal teeth ogival; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture ill-defined, bluntly carinate internally; genal surface irregularly punctate, transversally and shallowly sulcate on posterior half; clypeofrontal carina rather low, approximately 3 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate basally, puncture becoming coarse and distinctly rugose anteriorly, with a fine longitudinal sulcus on posterior half; pronotal anterior margin unmodified, convex lateral to eyes; anterior portion with a tri-sinuous carina; anterior angles surface with rough punctures, deeply sulcate along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions unmodified; pronotal basal fossae very small and more or less rounded; posterior margin ill-defined, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, distinctly more impressed basally, elytral striae 5 similar to 4 on disc, stria punctures ill-defined throughout, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe angularly produced anteromedially, ventral ridge absent. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thin, evenly developed, internal edge rather narrow, with a contiguous row of setae along anterointernal edge, remaining surface smooth along setae. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae incomplete, irregular; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy externally with distinct transverse microsculpture internally, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented (Fig. 120), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 80–81). Parameres simply rounded apically in dorsal view; with minute raspy tubercles apically.



**Measurements** (27 males, 25 females). Length: male 7.5–12.0 (10.1±1.1), female 9.0–12.5 (10.4±1.0) mm.

**Primary type data.**

*Dendrop[ajemon bahianus* Harold (Fig. 145). Lectotype male (MNHN): [Bahia/ Lacerda] handwritten; [EX.Musæo/ E.Harold]; [Bahia/ D./ bahianus/ t. Harold] handwritten, red border; [Museum Paris/ ex Coll./ R. Oberthur] green card; [Dendropaemon/ bahianus Har./ Lectotype/ P.ARNAUD DET 1982] partly handwritten, red border; [WORLD/ SCARAB./ DATABASE/ WSD0002072].

*Dendrop[ajemon lobatus* Waterhouse. Lectotype male (BMNH) **present designation**: [Type] disc, red border; [67 45]; [226.] blue card; [lobatus./ Reiche./ Brazil.] handwritten; [TYPE] red card; [Dendropemon/ lobatus./ (Type) Waterh.] handwritten; [WORLS/ SCARAB./ DATABASE/ WSD00002074]; [LECTOTYPE/ *Dendrop[ajemon/ lobatus/* Waterhouse, 1891/ dés. Génier & Arnaud, 2014] red card; [*Dendropaemon* ♂/ *bahianus/* Harold, 1868/ dét. Génier & Arnaud, 2009].

*Dendropaemon tenuitarsis* Felsche. Lectotype female (MTD) **present designation**: [Paraguay] handwritten; [♀]; [Typus] red card; [Dendropaemon/ batrachites Blut/ Paraguay. ♀] handwritten, black border; [WORLD/ SCARAB./ DATABASE/ WSD00016972]; [LECTOTYPE/ *Dendropaemon/ tenuitarsis/* Felsche, 1909/ dés.: Génier & Arnaud, 2014] red card; [HOLOTYPE/ *Dendropaemon/ batrachites/* Blut, 1939] red card; [*Dendropaemon* ♀/ *bahianus/* Harold, 1868/ dét. Génier & Arnaud, 2009].

*Dendropaemon batrachites* Blut. Holotype female (MTD): Same data as *D. tenuitarsis* Felsche.

**Material examined.** PARAGUAY: [unspecified locality], [no date], coll. [anonymous]—1 female (holotype) (MTD); BRAZIL: same locality, [no date], coll. [anonymous]—1 male (lectotype) (BMNH); Lacerda, [no date], coll. [anonymous]—1 female (CNC); [unspecified locality], [no date], coll. [anonymous]—1 female (IRSNB); BAHIA, Santo Antônio da Barra [= Condeúba], (14°54'S, 41°58'W), xi–xii.1888, coll. Gounelle—1 male (ZMHB); São Gonçalo dos Campos, (12°25'S, 38°58'W), 26.vi.1946, coll. [anonymous]—1 male (CMNC); [unspecified locality], (12°18'S, 41°29'W), [no date], coll. [anonymous]—8 females, 3 males (incl. lectotype) (BMNH, CPFA, MNHN, MTD); DISTRITO FEDERAL, Brasília, (15°47'S, 47°55'W), xii.1993, coll. [anonymous]—1 female (CEMT); same locality, 6.xii.1988, coll. [anonymous]—1 female (CEMT); Brasília (SHIS QI 13/BsB), (15°50'24"S, 47°52'31"W), 3.x.1998, coll. F.F. Borges—1 male (CEMT); Planaltina, Brasília, (15°37'S, 47°40'W), 19.xi.2012, coll. C.M. Oliveira—2 males (CEMT); Reserva Ecológica do IBGE, (15°56'41"S, 47°53'7"W), iii.1997, coll. I. Diniz—1 male (CEMT); GOIÁS, 20 km N São João d'Aliança, (14°31'41"S, 47°30'22"W), 14.iv.1956, coll. F.S. Truxal—1 female (WDEC); Jataí, (17°53'S, 51°43'W), 1895–96, coll. Ch. Pujol—1 male (MNHN); MATO GROSSO, Vale da Solidão, Município Diamantino, (14°21'34"S, 56°8'9"W), 31.i.2009, coll. D.C.T. Oliveira—1 male (CEMT); same locality, 28.ii.2009, coll. D.C.T. Oliveira—1 female (CEMT); MATO GROSSO DO SUL, UNESP Farm [=Fazenda Experimental da Universidade Estadual Paulista, câmpus de Ilha Solteira], Selvíria, (20°20'8"S, 51°24'44"W), 5.ii.2010, coll. H. Wilson—1 male (MEFEIS); same locality, 19.ii.2010, coll. H. Wilson—1 male (MEFEIS); same locality, 6.iii.2010, coll. H. Wilson—1 female (MEFEIS); MINAS GERAIS, Campus UFVJM [=Universidade Federal dos Vales do Jequitinhonha e Mucuri], Diamantina, (18°12'3"S, 43°34'31"W), i.2005, coll. S.L. Assis Jr.—1 male (CEMT); Caratinga, (19°47'S, 42°8'W), vi.1993, coll. Andreza—1 female (CEMT); Fazenda do Riacho Fundo, Campos de Diamantina, xii.1902, coll. E. Gounelle—1 male (MNHN); Fazenda Pontinha, Cordisburgo, elev. 700 m (19°8'53"S, 44°12'1"W), i.1999, coll. Falqueto & Vaz de Mello—1 male (CEMT); Montes Claros, (16°44'13"S, 43°51'53"W), xii.1999, coll. J.N.C. Louzada—4 females, 8 males (CEMT); [unspecified locality], [no date], coll. [anonymous]—1 female (IRSNB); PARAÍBA, Cajazeiras, (6°53'24"S, 38°33'43"W), viii.1966, coll. Martínez—1 female (CMNC); RIO DE JANEIRO, Rio de Janeiro, (22°57'S, 43°13'W), [no date], coll. [anonymous]—1 male (CPFA); [NO DATA]: –, coll. [anonymous]—3 females, 2 males (CPFA, MNHN).

**Natural history.** Three specimens were collected using a window trap set in a cerradão fragment.

**Remarks.** Females can be separated from males by the simply tuberculate pronotal anteromedian carina, in small females the carina is simple, lacking the median tubercle.

Variation, aside for size, is restricted to the extent of metallic markings on the head and pronotum. The color is relatively uniform in the sample studied, varying from dark purple blue to green. The record from Paraguay needs to be confirmed, it might be based on a mislabeled specimen.

**Nomenclature and taxonomy.** 1) *D. lobatus* Waterhouse, 1891 = *D. bahianus* Harold, 1868, **new synonymy**. The lectotype of *D. lobatus* (**present designation**), is designated in order to choose a male specimen as primary type. Waterhouse states in the original description that he has seen another female specimen from the Nevins

collection, inferring that more than one specimen were studied. The lectotype of *D. lobatus* was compared to the lectotype of *D. bahianus* and no differences were found except being larger and showing more developed secondary sexual characters.

2) *D. tenuitarsis* Felsche, 1909 = *D. bahianus* Harold, 1868, **new synonymy**.

The specimen(s) studied by Felsche should be deposited in the Staatliches Museum für Tierkunde (Dresden), however no specimen was or were labeled as such and bear the typical green “Coll. C. Felsche” labels. However, the holotype of *D. batrachites* Blut, a female specimen that is labeled “Paraguay” and matches Felsche’s very short description is most likely a syntype. Felsche states that the new species is similar in size shape and coloration to *D. viridis* and describes the shape of the meso- and metatarsi and the description is detailed enough to match the tarsal shape of species of the quadratus complex. In order to stabilize nomenclature, we consider this specimen matching Felsche’s original description and type locality, as a syntype and designate it as the lectotype of *D. tenuitarsis*. The lectotype, aside being a female and showing a green metallic sheen instead of the blue metallic sheen, is identical to primary type of *D. bahianus*.

3) *D. batrachites* Blut, 1939 = *D. bahianus* Harold, 1868, **new synonymy**.

The holotype female of *D. batrachites*, which is also the lectotype of *D. tenuitarsis*, and therefore an objective primary synonym of *D. tenuitarsis* which is a subjective synonym of *D. bahianus* (see discussion in previous paragraph). Blut states that the type specimen is from Felsche’s collection and add the following information which might have been referred from the code number attached to the specimen: “Paraguay, coll. Felsche (probably from the vicinity of San Salvador, Dr. Bohls, S)”. Interestingly, Blut discuss the fact that the type of this species cannot be found in the Staatliches Museum für Tierkunde and does not notice the fact that the specimen that he described as *D. batrachites* matches Felsche’s description of *D. tenuitarsis*.

## 25. *Dendropaemon (Glaphyropaemon) inemarginatus* Génier & Arnaud, new species

(Fig. 25, 158)

*Dendropaemon (D.) refulgens*: Martínez & Clavijo 1990, *Bol. Ent. Ven. N.S.* 5: 155 (biology)

**Type locality.** Coromoto, Departamento Atures, Territorio Federal Amazonas, Venezuela.

**Diagnosis.** The only species in the genus with a vestigial posterior pronotal margin. In some species the margin is reduced but always visible on a distance laterally and medially.

**Description.** Female holotype (Fig. 25). **Body.** Body moderately large, length 13.0 mm, maximum width 6.5 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head with green metallic sheen on posterior portion of clypeus, genae and frons; pronotum with green metallic sheen except for anteromedian carina, on anterior portion of disc and surface adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum reddish brown to dark brown; pygidium with green metallic sheen; legs reddish brown to dark brown. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth ogival; clypeal median emargination narrowly v-shaped, clypeal edge acutely notched on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface irregularly punctate, transversally and shallowly sulcate on posterior half; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.8. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate basally, puncture becoming fine anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a trisinuous carina, carina produced into a tubercle medially; anterior angles surface simply punctate, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions unmodified; pronotal basal fossae ill-defined, slightly concave; posterior margin vestigial, reduced to a minute interrupted carina throughout. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and fine apically, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, striae

punctures fine and well-defined, adjacent stria edge encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posterointernal margin rather thin, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with rugose irregular punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment short, approximately as long as wide at apex. Metafemur broadly oval in anterior view, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, with fine irregular punctures on a glossy surface, metatibial posterior surface flat between longitudinal row of setae and lateral edge, glossy between punctures. Metatarsus 3-segmented, first segment short, approximately as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc.

**Measurements** (1 female). Length: 13.0 mm.

**Primary type data.** Female holotype (CMNC): [Marz-979/ VENEZUELA/ T.F.Amazonas/ D° Atures/ Coromoto/ G.y H.Martínez-leg./ Coll. A. Martínez] handwritten; [H. & A. HOWDEN/ COLLECTION/ ex. A. Martínez coll.]; [WORLD/ SCARAB./ DATABASE/ WSD00016731]; [HOLOTYPE ♀/ *Dendropaemon inemarginatus* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** Primary type only.

**Etymology.** *Inemarginatus*, without + margin, an adjective referring to the configuration of the posterior pronotal margin.

**Natural history.** The holotype was collected in a zone of loose and sandy soil in the early hours of the morning (Martínez & Clavijo, 1990).

**Remarks.** Male and variation unknown.

Superficially resembling species of *Coprophanaeoides*, however, the presence of a complete proepisternal carina place this species within *Dendropaemon* s. str. where it seems to occupy an isolated position.

### ***Dendropaemon (Nigropaemon)* Génier & Arnaud, new subgenus**

**Type species:** *Dendropaemon (Nigropaemon) nigrifulus* Génier & Arnaud, new species; monotypy.

**Description.** Size small to moderate. Habitus elongated, parallel sided; body completely black, lacking metallic sheen on head, pronotum and elytra. Body strongly compressed dorsoventrally. Clypeal edge distinctly emarginate on external side of each clypeal tooth; clypeal teeth triangular. Pronotum with some minute to fine punctures on disc; anterior margin very wide and flat lateral to eyes; lateral fossae rounded and simple. Elytral base lacking margin. Meso and metatarsi similar in shape, three segmented, first segment approximately two times as long as wide at apex, last segment spiniformly produced internally, with setae apically.

**Etymology.** “*Nigrum*” (black) a Latin adjective pertaining to the coloration of the only species included in the subgenus, with the suffix “paemon” to keep the naming scheme similar to the genus. Gender masculine.

## 26. *Dendropaemon (Nigropaemon) nigrutilus* Génier & Arnaud, new species

(Figs. 26, 82–83, 121, 158)

**Type locality.** Surumu, Serra Marari, Território Rio Branco, Brasil.

**Diagnosis.** The small size (less than 12.0 mm) combined with the lack of metallic luster and the elongate second metatarsal segment, which is as long as or slightly longer than the first metatarsus is unique in the genus.

**Description.** Male holotype (Fig. 26). **Body.** Body small, length 9.5 mm, maximum width 4.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, lacking metallic sheen; ventrum dark brown to black; pygidium dark brown; legs reddish brown to dark brown. **Head.** Clypeus semicircular, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination broadly v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture ill-defined, bluntly carinate internally; genal surface with ill-defined rugulae anteriorly and minute scattered tubercles posteriorly on disc, with a long blunt transverse carina; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes moderately large in dorsal view, interocular ratio 4.4.

**Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.3; disc of pronotum minutely punctate basally, puncture becoming fine anteriorly, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a broad and fine tectiform carina tuberculate medially; anterior angles surface with few ill-defined rugulae, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions unmodified; pronotal basal fossae very small and more or less rounded; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 0.9; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine, not bordered by a minute carina laterally, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures ill-defined, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posteroventral margin rather thin, evenly developed, internal edge rather wide, with a contiguous row of setae along anteroventral edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anteroventral edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less flat, with irregular setiferous punctures and microsculpture. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on median half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, with moderately dense minute punctures on a glossy surface, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented (Fig. 121), first segment moderately elongate, approximately two times as long as wide at apex, with anteroventral carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex, segment 6 slightly concave; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 slightly longitudinally concave medially, shorter than segment 6 along midline; pygidium with moderate to large punctures, punctures separated by one diameter or less. **Male genitalia** (Figs. 82–83). Parameres laterally concave before apex; surface smooth, glossy apically.

**Measurements** (4 males, 9 females). Length: male 9.0–11.0 (9.8±0.9), female 9.5–12.0 (10.5±0.8) mm.

**Primary type data.** Holotype male (CMNC): [Sept.956/ BRASIL/ T. Rio Branco/ Surumu/ Sa. Marari/ Coll. Martínez] handwritten; [H. & A. HOWDEN/ COLLECTION/ ex. A. Martínez coll.]; [WORLD/ SCARAB./ DATABASE/ WSD00017011]; [HOLOTYPE/ *Dendropaemon nigrutilus* n.sp./ Génier & Arnaud, 2014] red card.



**Material examined.** **BRAZIL:** AMAZONAS, Reserva Florestal Adolpho Ducke, 26 km NE Manaus, (2°57'S, 59°57'W), 1995–1996, coll. [anonymous]—2 females (incl. 2 paratypes) (BMNH); Rio Uatumã, (2°34'S, 58°9'W), i.1944, coll. [anonymous]—1 female allotype (CMNC); RORAIMA, [Rio] Surumu, Serra Marari [= Serra Saporá], (4°23'N, 60°45'W), ix.1956, coll. [anonymous]—1 male (holotype) (CMNC); **COLOMBIA:** ARAUCA, Tame, (6°27'33"N, 71°44'12"W), 27.vii.1976, coll. M. Cooper—1 female (paratype) (BMNH); **GUYANA:** UPPER DEMERARA-BERBICE, kurupukari, (4°40'N, 58°40'W), iv–xi.1992, coll. [anonymous]—1 female (paratype) (BMNH); **GUYANE FRANÇAISE:** PK 5, Piste KM 25, Route Régina-Saint-Georges, (4°6'54"N, 52°7'16"W), viii.2008, coll. J.L. Giuglaris—1 female (paratype) (ATHC); Réserve naturelle des Nouragues, (4°19'N, 52°22'W), 26.viii.2010, coll. [anonymous]—1 male (paratype) (COBF); same locality, 2.ix.2010, coll. [anonymous]—2 females (incl. 2 paratypes) (COBF); **SURINAME:** SIPALIWINI, Kutari River, Kwamalasamutu region, elev. 250 m (2°10'N, 56°47'W), 18–24.viii.2010, coll. T. Larsen—2 males (incl. 2 paratypes) (AFIC); **VENEZUELA:** BOLIVAR, Río Sipao, 110 km E Caicara, (7°24'47"N, 65°12'24"W), 17.vi.–4.viii.1987, coll. S. & J. Peck—1 female (paratype) (BDGC).

**Etymology.** *Nigritulus*, a Latin adjective referring to the uniform black coloration of this species.

**Natural history.** Some specimens collected using flight interception traps set in gallery forest.

**Remarks.** Females differs by the shape of the anterior pronotal carina is not tuberculate medially and by the lower and wider clypeofrontal carina and the finer pygidial punctation.

Variation is limited to size and coloration which is reddish brown in teneral specimens.

### ***Dendropaemon (Onthoecus) Lacordaire, 1856***

*Onthoecus* Dejean **1833**, *Cat. Col. Coll. Dejean*: 140 (nomen nudum)  
*Onthoecus* Dejean **1836**, *Cat. Col. Coll. Dejean*, 3 ed.: 140 (nomen nudum)  
*Onthoecus* Agassiz **1846**, *Nom. Zool.*: 259 (nomen nudum)  
*Onthoecus* Lacordaire **1856**, *Hist. Nat. Ins. III*: 103 (original description)  
*Onthoecus* Burmeister **1861**, *Berl. Ent. Zeit.* 5: 56 (mentioned as synonym)  
*Onthoecus* Harold **1896**, *Cat. Col. IV*: 1020 (mentioned as synonym)  
*Onthoecus* Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (type designation)

**Type species:** *Dendropaemon amyntas* Harold, 1868 [= *Dendropaemon (Onthoecus) attalus* Génier & Arnaud, nomen novum]; subsequent designation by Edmonds (1972: 850).

**Diagnosis.** Size moderate to large. Habitus rectangular in dorsal view, parallel sided; with metallic sheen on head, pronotum and elytra. Body moderately compressed dorsoventrally. Clypeal edge emarginate or not on external side of each clypeal tooth; clypeal teeth triangular. Pronotum with moderate punctures on disc, punctures larger and more or less confluent and forming rugulae anteriorly; anterior margin flat lateral to eyes; lateral fossae more or less oval, simple. Elytral base lacking margin. Meso and metatarsi slightly dissimilar in shape, three segmented, first segment as long as to twice as long as wide at apex, last segment spiniform, lacking setae apically.

### **27. *Dendropaemon (Onthoecus) amyntas* Lacordaire, 1856**

(Figs. 27, 84–85, 122, 159)

*Dendropaemon Amyntas* Lacordaire **1856**, *Hist. Nat. Ins. III*: 103 (original description)  
*Dendropaemon Amyntas*: Lacordaire **1856**, *Hist. Nat. Ins. Atlas*: Pl. 27, Fig. 5 (illustration)  
*Dendropaemon Amyntas*: Harold **1869**, *Cat. Col. IV*: 1020 (catalogue)  
*Dendropaemon waterhousi* Olsoufieff **1924**, *Insecta* 13: 125 (original description) **new synonymy**  
*Dendropaemon waterhousi*: Pessôa & Lane **1936**, *Rev. Biol. Hygiene* 7: 90 (identification key, comment)  
*Dendropaemon amyntas waterhousi*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 269 (monograph)  
*Dendropaemon waterhousei*: Pessôa & Lane **1941**, *Arq. Zool. S. Paulo* 2: 490 (identification key, distribution)  
*Dendropaemon waterhousei*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropaemon (D.) amyntas*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (misidentification)  
*Dendropaemon waterhousi*: Arnaud **1982**, *Rev. Fr. Ent. (N.S.)* 4: 117 (lectotype designation)  
*Dendropaemon amyntas waterhousei*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon waterhousei*: Vitolo **2000**, *Rev. Acad. Colomb. Cienc.* 24: 599 (misidentification)  
*Dendropaemon (D.) amyntas*: Arnaud **2002**, *Col. Monde* 28: 16 (monograph)

**Type locality.** Brésil.

**Diagnosis.** The large size, rather thick body combined with dark metallic blue sheen of the dorsum will separate *D. amyntas* from all other species. It can easily be separated from its sister species *D. attalus* by the shape of the clypeal teeth (Fig. xx) and the more slender metatibia.

**Description.** Male lectotype (Fig. 27). **Body.** Body large, length 18.0 mm, maximum width 10.0 mm; body subrectangular; dorsum narrowly flat. **Color.** Dorsal surface dark reddish brown to black, glossy, with metallic sheen; head with greenish to coppery metallic sheen adjacent to the eyes; pronotum with blue metallic sheen except for anteromedian carina, on anterior portion of disc and surface adjacent to lateral fossae; elytra with rather faint blue to purple metallic sheen; ventrum light to dark brown; pygidium with blue and green metallic sheen; legs light to dark brown. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth triangular, lateral edges of each tooth only slightly tapering toward apex; clypeal median emargination broadly v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine punctures laterally, fine tubercles medially and minute tubercles posteriorly, transversely tumescent; clypeofrontal carina as high as wide basally, gradually tapering toward apex, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 6.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum finely punctate basally, punctures changing into fine rough rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin slightly wider and concave lateral to eye; anterior portion with a strongly tri-sinuous carina produced into a wide truncated lobe medially; anterior angles surface with fine rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions strongly explanate; pronotal basal fossae well-defined, concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide, not bordered by a minute carina laterally, shallowly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures ill-defined, adjacent stria edge encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae moderately convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thick, uneven, internal edge wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface more or less irregularly punctate. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge finely crenulate, anteroapical row of setae incomplete, irregular; apicoanterior edge circularly indented internally; external edge rounded basally, more or less flat apically, surface with irregular punctures and microsculpture. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment rather elongate, approximately three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, depressed anterointernally before apex, apicoposterior edge lobate beyond tibial insertion, surface coarsely microsculptured, anterior surface with a well-defined irregular sulcus on median half. Metatibia robust, short, slightly widening toward apex in anterior view, anterior surface completely covered with irregular sculpturing and punctures, metatibial posterior surface concave between longitudinal row of setae and lateral edge, surface dull and irregularly punctate. Metatarsus 3-segmented (Fig. 122), first segment moderately elongate, approximately three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium with mixed minute and fine punctures on disc. **Male genitalia** (Figs. 84–85). Parameres dentate in dorsal view; with minute raspy tubercles apically.

**Measurements** (11 males, 10 females). Length: male 15.0–20.5 (17.9±1.8), female 16.5–21.0 (18.2±1.3) mm.

**Primary type data.**

***Dendropaemon amyntas* Lacordaire.** Brésil (from primary citation).

***Dendropaemon waterhousi* Olsoufieff.** Lectotype male (MNHN): [LAFERTÉ./ 4820.] partly handwritten; [Ex.Musæo/ D.Sharp 1890] black border; [Museum Paris/ ex Coll./ R. Oberthur] green card; [Dendropaem. waterhousi sp.n/ det. G. OLSOUFIEFF] partly handwritten; [Dendropaemon/ waterhousi Ols./ LECTOTYPE/ P.ARNAUD DET 1982] red border; [WORLD/ SCARAB./ DATABASE/ WSD00016617]; [Dendropaemon ♂/ amyntas/ Lacordaire, 1856/ dét. Génier & Arnaud,2012]

**Material examined. [NO DATA]:** -, coll. [anonymous]—4 females, 4 males, 1 specimen (BMNH, IRSNB, MNHN, MNRJ, NMPC); -, coll. [anonymous]—1 female, 2 males (incl. lectotype, 2 paralectotypes of *D. waterhousi*) (MNHN); **BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 male (CPFA); BAHIA, Ilhéus, (14°48'S, 39°2'W), [no date], coll. [anonymous]—1 female (IRSNB); ESPIRITO SANTO, Parque Estadual da Forte Grande, Vitória, (20°18'S, 40°20'W), 30.x.2004, coll. Erwin, Pannagnani & Schiffler—1 female (CEMT); Vitória, (20°19'S, 40°21'W), [no date], coll. [anonymous]—1 female, 1 male (ZMHB); MATO GROSSO DO SUL, Dourados, (22°13'S, 54°48'W), x.2010, coll. V.A. Conrad—1 male (CEMT); same locality, 1.xi.2009, coll. J.F.A. Da Luz—1 female (CEMT); UNESP Farm [=Fazenda Experimental da Universidade Estadual Paulista, câmpus de Ilha Solteira], Selvíria, (20°20'8"S, 51°24'44"W), 6.xi.2010, coll. H. Wilson—1 female (MEFEIS); same locality, 20.xi.2010, coll. H. Wilson—1 male (MEFEIS); same locality, 4.ii.2011, coll. H. Wilson—1 female (MEFEIS); MINAS GERAIS, Universidade Federal de Viçosa Campus, Viçosa, (20°45'S, 42°52'30"W), ix.1999, coll. Vaz-de-Mello & Milhomem—1 female (CEMT); same locality, 18.xi.1995, coll. F. Vaz de Mello—1 male (CEMT); RIO DE JANEIRO, Cordeiro, (22°1'S, 42°22'W), ii.1989, coll. R. Salgado—1 male (CEMT); Mendes, (22°31'S, 43°45'W), [no date], coll. [anonymous]—1 male (CPFA).

**Natural history.** Unknown. Three specimens collected using unbaited window traps.

**Remarks.** Females differs in having the clypeofrontal carina much lower, approximately 4 times as wide as high and by the anterior pronotal carina simply tri-sinuate and only slightly more developed medially.

Variation is seen in the extent and intensity of the metallic sheen, as well as the color varying from greenish to dark purplish-blue. In some individuals the pronotal punctures are slightly larger and coarser. Specimens from the cerrado slightly but consistently differs in the shape of the clypeal teeth which are smaller and more obliquely oriented laterally. Females from the cerrado also have the median portion of the pronotal carina produced into an upward angular projection, the carina is simply arcuate in specimens from the Atlantic forest. The configuration of the male median pronotal projection is also variable, some individuals present a simply dorsoventrally flat projection, and in some other the anterior edge of the projection is thickened and more or less marginate dorsally. The inferior surface of the lobate median projection is produced into a more or less sharp longitudinal carina. This carina, which is very blunt and less developed in the Atlantic forest specimens is dividing the anterior concavity into two equal portions.

**Nomenclature and taxonomy.** *D. amyntas* Lacordaire, 1856 bona species = *D. waterhousi* Olsoufieff, 1924 (auctores), **new synonymy.**

Lacordaire's (1856) description and illustration (holotype) of this species were considered invalid by previous authors. The description alone is too vague to identify the species, however the illustration is very accurate and clearly shows one of the diagnostic characters of this species. The clypeal teeth are clearly defined in the drawing and correspond to the species that is found in the cerrado and Atlantic forest of Brazil. This species was redescribed as *D. waterhousi* by d'Olsoufieff in 1924. Harold (1869) lists Lacordaire's name but failed to recognize the description as valid, which seems to have started the confusion over the identity of this species.

## **28. *Dendropaemon (Onthoecus) attalus* Génier & Arnaud, nomen novum**

(Figs. 28, 86–87, 123, 159)

*Dendropemon Amyntas* Harold **1868**, *Col. Hefte* 4: 83 (original description)

*Dendropemon Amyntas*: Harold **1869**, *Cat. Col.* IV: 1020 (catalogue)

*Dendropemon Amyntas*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon amyntas*: Olsoufieff **1924**, *Insecta* 13: 122 (monograph)

*Dendropaemon amyntas amyntas*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 267 (monograph)

*Dendropemon amyntas*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon (D.) amyntas*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon amyntas*: Arnaud **1982**, *Rev. Fr. Ent. (N.S.)* 4: 115 (lectotype designation)  
*Dendropaemon amyntas amyntas*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon (D.) amyntas*: Philips et al. **2004**, *Insect Syst. Evol.* 35: 51 (phylogeny)

**Type locality.** Cayennae.

**Diagnosis.** The large size, rather thick body combined with the dorsum dark metallic blue sheen will separate *D. attalus* from all other species. It can be separated from its sister species, *D. amyntas*, by the shape of the clypeal teeth.

**Description.** Undamaged female specimen matching abraded male lectotype (Fig. 28). **Body.** Body large, length 22.0 mm, maximum width 12.0 mm; body subrectangular; dorsum narrowly flat. **Color.** Dorsal surface black, glossy, with metallic sheen; head with greenish to coppery metallic sheen adjacent to the eyes; pronotum with faint bluish metallic sheen along the border; elytra with uniform blue metallic sheen; ventrum dark brown to black; pygidium with greenish metallic sheen; legs black. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth triangular; clypeal median emargination broadly v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and coarse rugulae anteriorly and simply punctate posteriorly, transversely tumescent; clypeofrontal carina low, more than 6 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge obtusely angular medially in frontal view; eyes small in dorsal view, interocular ratio 5.8. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum finely punctate basally, punctures changing into fine rough rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin slightly wider and concave lateral to eye; anterior portion with a tri-sinuous carina; anterior angles surface with fine rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions strongly explanate; pronotal basal fossae well-defined, concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures fine, not encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a brush of long setae along anterointernal edge, remaining surface irregularly punctate. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with coarse irregular punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae incomplete, irregular; apicoanterior edge obliquely truncated internally; external edge rounded basally, more or less flat apically, surface with irregular punctures and microsculpture. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, depressed anterointernally before apex, apicoposterior edge lobate beyond tibial insertion, surface coarsely microsculptured, anterior surface with a row of irregular punctures, punctures not bordered anteriorly by a sharp and well-defined sulcus. Metatibia robust, short, slightly widening toward apex in anterior view, anterior surface completely covered with irregular sculpturing and punctures, metatibial posterior surface concave between longitudinal row of setae and lateral edge, surface dull and irregularly punctate. Metatarsus 3-segmented (Fig. 123), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium with mixed minute and fine punctures on disc.



**Measurements** (10 males, 24 females). Length: male 16.0–20.0 (18.7±1.3), female 16.0–22.5 (19.5±1.5) mm.

**Primary type data** (Fig. 146). Lectotype female (MNHN): [Cayenae/ D./ Amyntas/ t. Harold] handwritten, red border; [Ex-Musæo/ E.Harold]; [Dendropaemon amyntas Har/ det. G. OLSOUFIEFF] partly handwritten; [Museum Paris/ ex Coll./ R.Oberthur] green card; [WORLD/ SCARAB./ DATABASE/ WSD00016598]; [Dendropaemon/ amyntas Har/ LECTOTYPE/ PARNAUD DET 1982] partly handwritten, red border; [*Dendropaemon* ♀/ *attalus*/ Génier & Arnaud/ dét. Génier & Arnaud, 2012].

**Material examined. BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 female, 1 male (BMNH, CPFA); AMAZONAS, Município Barcelos, Pico Tamacuari, 2700m NW Missão Marari, elev. 340 m (1°12'26.4"N, 64°47'18.1"W), 29.iv.–10.v.2004, coll. U. Caramaschi—1 male (CEMT); Rio Parauary, (4°36'S, 57°47'W), 15.iii.1937, coll. Zellibor-Hauff—1 female (CMNC); MATO GROSSO, Fazenda Paraíso, Município Tangara da Serra, elev. 500 m (14°40'2"S, 57°23'9"W), 27.xi.–4.xii.2008, coll. L.R. Silva—1 female (CEMT); PARÁ, [unspecified locality], [no date], coll. S. Sieber—1 female (ZMHB); RONDÔNIA, Barragem de Samuel, Candeias do Jamari, (8°46'S, 63°28'W), iv.89, coll. Dégallier—1 female (CPFA); Fazenda estrela de Davi, Guajará-Mirim, elev. 165 m (10°44'35.1"S, 65°17'58.57"W), 18.ii.2010, coll. F. Coletti—1 female (CEMT); GUYANA: [unspecified locality], [no date], coll. [anonymous]—1 female (MNHN); CUYUNI-MAZARUNI, Kartabo, (6°16'57"N, 58°35'8"W), 23.vi.1925, coll. [anonymous]—1 female (CMNC); GUYANE FRANÇAISE: Cacao, (4°35'N, 52°28'W), iii.2007, coll. [anonymous]—2 females (CPFA); Cayenne, (4°54'3"N, 52°18'12"W), [no date], coll. [anonymous]—5 females (incl. holotype) (CPFA, IRSNB, MNHN); Crique Blanche, R.N. 2, (4°33'39"N, 52°23'50"W), ii.2009, coll. Giuglaris—2 females (CPFA); environs de Cacao, (4°35'N, 52°28'W), iii.2007, coll. E. Degrad & P. Bonin—1 female, 1 male (CPFA); Paramaca (Kourou), (5°8'54"N, 52°40'51"W), [no date], coll. [anonymous]—2 females, 2 males (MTD); PK 125, Route N2 (Cayenne-Saint-Georges-de-L'Oyapock), (4°13'21"N, 52°7'15"W), 6.iii.2008, coll. J.L. Giuglaris—1 female (CPFA); same locality, 20.vii.2008, coll. J.L. Giuglaris—1 female (CPFA); PK 5, Piste KM 25, Route Régina-Saint-Georges, (4°6'54"N, 52°7'16"W), vii.2008, coll. J.L. Giuglaris—1 female (ATHC); same locality, ix.2008, coll. J.L. Giuglaris—1 male (ATHC); Réserve naturelle des Nouragues, (4°19'N, 52°22'W), 2.vii.2008, coll. F. Feer—1 male (MNHNB); Savane Matiti, (5°5'N, 52°37'W), i.2011, coll. [anonymous]—1 female, 1 male (CPFA); same locality, ix.2009, coll. J.L. Giuglaris—1 female (PMOC); [NO DATA]: -, coll. [anonymous]—3 males (CPFA, IRSNB).

**Natural history.** Some specimens were collected with flight interception traps.

**Remarks.** Meso and hyperthelic males have the clypeofrontal carina trapezoidal in front view, the pronotal anterior declivity has a concave impression on each side of mid line and the anterior transverse carina projecting forward and emarginate medially in dorsal view. Parameres (Figs. 86–87) feebly dented in dorsal view, lacking distinct raspy tubercles apically. Variation. Little except for size and a single specimen from the state of Rondônia with green metallic sheen.

**Nomenclature and taxonomy.** *Dendropaemon attalus* Génier & Arnaud, 2014 **nomen novum** for *Dendrop[a]emon amyntas* Harold, 1868 **primary junior homonym**.

A replacement name is necessary for *D. amyntas* Harold, 1868 because of the previous description of *D. amyntas* Lacordaire, 1856, which represents a different taxon.

## 29. *Dendropaemon (Onthoecus) lydiae* Génier & Arnaud, new species

(Figs. 29, 88–89, 124, 159)

**Type locality.** Cameta, Amazonas.

**Diagnosis.** The large size, rather thick body combined with the red to green metallic sheen will separate *D. lydiae* from most other species. It can be separated from *D. refulgens* by its less convex dorsum and much more robust posterior tibia which is completely covered with irregular sculpturing and punctures. Differs from *D. morettoii* by the shape of the anteromedian pronotal carina which is subangulate medially in female and is bordering anteriorly a distinct concavity in the male.

**Description.** Male holotype (Fig. 29). **Body.** Body large, length 18.0 mm, maximum width 10.0 mm; body subrectangular; dorsum convex. **Color.** Dorsal surface black, glossy, with metallic sheen; head with red metallic sheen on posterior portion of clypeus, genae and frons; pronotum with red metallic sheen, except on anteromedian carina, small irregular area on disc and anterior to lateral fossae; elytra with red metallic sheen, except on humeral

and apical umbone; ventrum dark brown to black; pygidium with red metallic sheen; legs black. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth obtusely triangular; clypeal median emargination broadly v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt irregular tubercles, lacking distinct transverse carina, concave laterally and convex internally; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.8. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum finely punctate basally, punctures changing into fine blunt rugulae anterolaterally, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin slightly wider and concave lateral to eye; anterior portion with a strongly tri-sinuous carina transversally tuberculate medially; anterior angles surface with more or less rough and irregular fine tubercles, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae well-defined, concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface irregularly punctate. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge lobate beyond tibial insertion, surface coarsely microsculptured, anterior surface with a row of irregular punctures, punctures not bordered anteriorly by a sharp and well-defined sulcus. Metatibia robust, short, slightly widening toward apex in anterior view, anterior surface completely covered with irregular sculpturing and punctures, metatibial posterior surface concave between longitudinal row of setae and lateral edge, surface dull and irregularly punctate. Metatarsus 3-segmented (Fig. 124), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 88–89). Parameres concave before apex; with minute raspy tubercles apically.

**Measurements** (3 males, 7 females). Length: male 17.0–18.0 (17.3±0.6), female 15.0–20.0 (18.3±2.0) mm.

**Primary type data.** Holotype male (MNHN): [Cameta/ Amazonas/ M. de Mathan]; Dendrop. refulgens Wth./ det. G. OLSOUFFIEFF partly handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016632]; [HOLOTYPE/ *Dendropaemon/ lydiae* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** **BRAZIL:** ACRE, Parque Zoobotânico da Universidade Federal do Acre, Rio Branco, (9°57'8"S, 67°52'23"W), ii.1997, coll. F. Z. Vaz de Mello—1 female (paratype) (CEMT); AMAZONAS, Cametá, (6°10'S, 64°14'W), [no date], coll. M. de Mathan—1 male (holotype) (MNHN); Ega [=Tefé], (3°22'S, 64°42'W), [no date], coll. [anonymous]—1 female (paratype) (MNHN); Lg. Galomãinha, Rio Unini, Resex Unini [= Reserva Extrativista Rio Unini], (1°37'S, 62°59'W), 13–28.vii.2004, coll. M.L. Oliveira, L. Aquino & A Silva-Filho—1 female, 1 male (paratypes) (CEMT); Rio Parauary, (4°36'S, 57°47'W), 15.iii.1937, coll. Zellibor-Hauff—1 female

allotype (CMNC); MATO GROSSO, Município Cotriguaçu, (9°51'28"S, 58°24'50"W), v.2011, coll. R.E Vicente—1 female (paratype) (CEMT); Vale da Solidão, Município Diamantino, (14°22'13"S, 56°7'12"W), 31.i.2009, coll. D.C.T. Oliveira—1 male (paratype) (CEMT); PARÁ, Jacareacanga, (6°13'35"S, 57°46'9"W), xii.1972, coll. M. Alvarenga—1 female (paratype) (CPFA); RORAIMA, Ilha de Maracá, (3°25'N, 61°40'W), ix.1996, coll. Ribeiro & Vaz-de-Mello—1 female (paratype) (CEMT).

**Etymology.** *Lydiae*, a patronym consisting of the Latinized form of the name Lydie. In honor of the late Lydie Arnaud, spouse of the junior author.

**Natural history.** Unknown.

**Remarks.** Females differs by their tri-sinuate anteromedian pronotal carina which is more evenly developed. In male the carina is strongly and transversally tuberculate medially and the carina is much reduced on a short distance on each side of the tubercle.

The six known specimens are variable, and some might be recognized as representing distinct species once more material becomes available. However, at this time this variation will be treated as intraspecific. This variation is seen in leg morphology in the following form: in the holotype and the specimen from Roraima the metatibiae and metatarsi are significantly more slender.

### 30. *Dendropaemon (Onthoecus) moretto* Génier & Arnaud, new species (Figs. 30, 90–91, 125, 159)

*Dendropaemon waterhousei*: Vitolo 2000, *Rev. Acad. Colomb. Cienc.* 24: 599 (identification key)

**Type locality.** Gigante, Huila, Colombie.

**Diagnosis.** The large size, rather thick body combined with the green to bluish metallic sheen will separate *D. moretto* from most other species. It can be separated from *D. refulgens* by its less convex dorsum and much more robust posterior tibia which is completely covered with irregular sculpturing and punctures. Differs from *D. lydiae* by the shape of the anteromedian pronotal carina which is broadly arcuate medially in female and the lack of a distinct concavity posteriorly to carina in both sexes.

**Description.** Male holotype (Fig. 30). **Body.** Body large, length 19.5 mm, maximum width 10.0 mm; body subrectangular; dorsum convex. **Color.** Dorsal surface dark brown to black, glossy, with metallic sheen; head with green metallic sheen on posterior portion of clypeus, genae and frons; pronotum with green metallic sheen except disc and irregular area laterally; elytra with uniform green metallic sheen; ventrum with faint coppery sheen; pygidium with green metallic sheen; legs with faint coppery sheen. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge lacking emargination on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt irregular tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina moderately high, approximately twice as wide as high, arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge slightly trilobate in frontal view; eyes small in dorsal view, interocular ratio 5.4. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum minutely punctate basally, puncture becoming fine anteriorly and changing into fine isolated rugose tubercles on declivities, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin slightly wider and concave lateral to eye; anterior portion with a strongly tri-sinuous carina produced into a wide truncated lobe medially; anterior angles surface with more or less rough and irregular fine tubercles, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae well-defined, concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 atrophied, lacking fine carina on each side on disc, striae punctures minute, adjacent striae edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina complete, extending laterally; metasternal median lobe angularly

produced anteromedially, ventral ridge well-defined, v-shaped. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface irregularly punctate. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with irregular rugose punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge straight in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge lobate beyond tibial insertion, surface coarsely microsculptured, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface completely covered with irregular sculpturing and punctures, metatibial posterior surface flat between internal and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented (Fig. 125), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal Sternites** (Figs. 90–91). Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia.** Parameres concave before apex; with minute raspy tubercles apically.

**Measurements** (4 males, 2 females). Length: male 16.5–19.5 (18.4±1.3), female 17.5–20.0 (18.8±1.8) mm.

**Primary type data.** Male holotype (MNHN): [Santé Fé/ de Bogota.] green card; [MUSÉUM PARIS/ 1936/ COLL. A. BOUCOMONT] green card; [WORLD/ SCARAB./ DATABASE/ WSD00016606]; [HOLOTYPE/ *Dendropaemon/ morettoii n.sp.*/ Génier & Arnaud, 2014] red card.

**Material examined.** **COLOMBIA:** [unspecified locality], [no date], coll. Felipe Ovalle Q.—1 male (paratype) (CAS); DISTRITO CAPITAL, Bogotá, [no date], coll. [anonymous]—1 male (holotype) (MNHN); HUILA, Gigante, (2°23'N, 75°33'W), ix.1992, coll. O. Rojas—1 male (paratype) (PMOC); META, Villavicencio, (4°9'38"N, 73°39'43"W), [no date], coll. [anonymous]—1 female (paratype) (CPFA); same locality, v.1919, coll. fr. Apollinaire—1 male (paratype) (IRSNB); ECUADOR: MORONA-SANTIAGO, Macas, (2°19'20"S, 78°6'58"W), [no date], coll. [anonymous]—1 female allotype (IRSNB).

**Etymology.** A patronym, in honor of our colleague and friend Philippe Moretto who provided the first of the five known specimens of this species.

**Natural history.** Unknown.

**Remarks.** Females differ by their simply tri-sinuate anteromedian pronotal carina which is more evenly developed. In well-developed males the carina is produced into a wide truncated lobe medially similar to *D. amyntas* and *D. waterhousi*.

Variation occurs mostly in the extent of the metallic marking on the head and pronotum. All specimens studied are green or with greenish metallic sheen and in half of the specimens the pronotum is almost completely black. This species is most closely related to the former *D. amyntas* Harold (now *D. attalus* nom. nov.) and was identified as such in collections.

### ***Dendropaemon (Paradendropaemon) Edmonds, 1972***

*Dendropaemon (Paradendropaemon)* Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 849 (original description)

*Dendropaemon (Paradendropaemon)*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (checklist)

*Dendropaemon (Paradendropaemon)*: Arnaud **2002**, *Col. Monde* 28: 14 (monograph)

*Dendropaemon (Paradendropaemon)*: Vaz-de-Mello & Génier **2009**, *Col. Bull.* 63: 364 (biology)

**Type species:** *Dendropaemon ganglbaueri* Felsche, 1909, original designation.

**Diagnosis.** Size moderate to large. Habitus oval in dorsal view; lacking metallic sheen on head, pronotum and



elytra. Body convex dorsally. Clypeal edge emarginate on external side of each clypeal tooth; clypeal teeth triangular. Pronotum with moderate punctures on disc, punctures larger and forming rugulae anteriorly; anterior margin unmodified lateral to eyes; lateral fossae rounded, simple. Elytral base lacking margin. Meso and metatarsi dissimilar in shape, two segmented, metatarsal first segment more than three times as long as wide at apex, last segment cylindrical, with setae apically.

### 31. *Dendropaemon (Paradendropaemon) ganglbaueri* Felsche, 1909

(Figs. 31, 126, 148, 159)

*Dendropaemon Ganglbaueri* Felsche 1909, *Deut. Ent. Zeit.* 1909: 755 (original description)

*Dendropaemon Ganglbaueri*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon ganglbaueri*: Olsoufieff 1924, *Insecta* 13: 121 (monograph)

*Dendropaemon ganglbaueri*: Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 89 (identification key, comment)

*Dendropaemon ganglbaueri*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 490 (identification key, comment)

*Dendropaemon ganglbaueri*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon ganglbaueri*: Martínez 1944, *Rev. Arg. Ent.* 2: 35 (comment taxonomy)

*Dendropaemon (Paradendropaemon) ganglbaueri*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 849 (misidentification)

*Dendropaemon ganglbaueri*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (Paradendropaemon) ganglbaueri*: Arnaud 2002, *Col. Monde* 28: 14 (misidentification)

*Dendropaemon ganglbaueri*: Philips et al. 2004, *Insect Syst. Evol.* 35: 51 (phylogeny)

*Dendropaemon ganglbaueri*: Barbosa 2008, *Comm. Scar.*: 19 (biology)

*Dendropaemon (Paradendropaemon) ganglbaueri*: Vaz-de-Mello & Génier 2009, *Col. Bull.* 63: 364 (misidentification)

**Type locality.** Sao Paulo, Süd-Brasilien.

**Diagnosis.** The long, approximately 3.5 times as long as wide at apex, first metatarsomere will place *D. ganglbaueri* in *Paradendropaemon*. Differs from the only other species in the group, *D. vazdemelloi*, by the longitudinally compressed first metatarsomere, the metatibial anterior surface which is glossy between the fine irregular punctures, the anterior pronotal margin which is distinctly enlarged and flat lateral to the eye and by its seemingly larger average size.

**Description.** Male holotype (Fig. 31). **Body.** Body large, length 20.0 mm, maximum width 12.0 mm; body elongate-oval in dorsal view; dorsum convex. **Color.** Dorsal surface dark brown to black, glossy, lacking metallic sheen; ventrum dark brown to black; pygidium dark brown; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth obtusely triangular; clypeal median emargination v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with an arcuate irregular carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine blunt transverse rugulae, lacking distinct transverse carina, concave laterally and convex internally; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, tuberculate, clypeofrontal carina apical edge trilobate, median lobe much higher than laterals in frontal view; eyes small in dorsal view, interocular ratio 5.9. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum finely punctate basally, punctures changing into fine rough rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a nearly straight and slightly tuberculate medially transverse carina bordering anteriorly a large concavity; anterior angles surface with fine rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra slightly transverse, elytral combined width/length ratio 1.3; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, finely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thin, evenly developed, internal edge wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface finely punctate along setae. Protibia with four teeth on lateral edge; internal basal angle unmodified;

anterior surface lacking aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface lacking punctures externally to median carina, surface finely and irregularly microsculptured, with several unaligned and contiguous setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia abruptly widening before apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge angular, lacking distinct emargination internally; external edge more or less flat, bordered anteriorly and posteriorly by an almost complete setal row. Mesotarsus differently shaped than metatarsus, 2-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia abruptly widening before apex in anterior view, anterior surface with distinct row of setae, with fine irregular punctures on a glossy surface, metatibial posterior surface concave between internal and lateral edge, glossy between punctures. Metatarsus 2-segmented (Fig. 126), first segment elongate, more than three times as long as wide at apex, with anterointernal carina indistinguishable. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, narrowly glabrous medially; sternite 7 approximately longitudinally flat medially, as long as segment 5–6 combined along midline; pygidium finely punctate on disc. **Male genitalia.** Parameres unknown.

**Measurements** (1 male). Length: 20.0 mm.

**Primary type data** (Fig. 148). Male holotype (MTD): [Sao Paulo]; [Ganglbaueri/ Felsche/ Brasilien] handwritten; [♀] disc; [Coll. C. Felsche/ Kauf 20, 1918] green card; [TYPUS] red card; [Staatl. Museum für Tierkunde Dresden]; [Dendropaemon/ ganglbaueri ♀/ Felsche/ Sao Paulo. Blut det] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00002076]; [HOLOTYPE/ *Dendrop[a]emon/ ganglebaueri/ Felsche, 1909*] red card; [Dendropaemon/ ganglbaueri/ Felsche ♂/ vid. F. Génier, 2012] partly handwritten.

**Material examined.** Primary type only.

**Natural history.** Unknown.

**Remarks.** Female and variation unknown.

As opposed to what Felsche and Blut stated, the holotype is a male, but the aedeagus is missing. Removing the viscera and stuffing cotton in the cavity was often done when preparing large specimens in the 19th century. In addition to the characters mentioned above, the metasternal keel differs in being more developed and less arcuate in lateral view and the first metatarsomere has a single distinct fine longitudinal sulcus instead of two in *D. vazdemelloi*.

Unfortunately, the single known specimen only possess a generic (contemporary?) printed label stating “Sao Paulo”. Therefore, Felsche stated that the type locality is “Sao Paulo”, it is however not clear if it is taken in the sense of the state or the city. The original manuscript label only state “Brasilien” suggesting that it might be anywhere in Brazil. No additional specimens have ever been collected from the city or the state of São Paulo since it was originally described over a century ago.

### 32. *Dendropaemon (Paradendropaemon) vazdemelloi* Génier & Arnaud, new species

(Figs. 32, 92–93, 127, 159)

*Dendropaemon (Paradendropaemon) ganglbaueri*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 849 (diagnosis, comment)

*Dendropaemon (Paradendropaemon) ganglbaueri*: Arnaud 2002, *Col. Monde* 28: 14 (monograph)

*Dendropaemon (Paradendropaemon) ganglbaueri*: Vaz-de-Mello & Génier 2009, *Col. Bull.* 63: 364 (biology)

**Type locality.** Fazenda Pontinha, Cordisburgo, Minas Gerais, Brasil.

**Diagnosis.** The extremely long, approximately 5 times as long as wide at apex, first metatarsomere will place *D. vazdemelloi* in *Paradendropaemon*. Differs from the only other species in the group, *D. ganglbaueri*, by the cylindrical first metatarsomere, the metatibial anterior surface which is completely covered with irregular sculpturing and punctures, the anterior pronotal margin which is more or less of the same width and convex lateral to the eye and by the smaller average size.

**Description.** Male holotype (Fig. 32). **Body.** Body large, length 15.0 mm, maximum width 10.0 mm; body elongate-oval in dorsal view; dorsum convex. **Color.** Dorsal surface dark brown to black, glossy, lacking metallic

sheen; ventrum reddish brown to dark brown; pygidium reddish brown; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth obtusely triangular; clypeal median emargination broadly v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine blunt transverse rugulae, lacking distinct transverse carina, concave laterally and convex internally; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, tuberculate medially, clypeofrontal carina apical edge trilobate, median lobe much higher than laterals in frontal view; eyes small in dorsal view, interocular ratio 6.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.5; disc of pronotum finely punctate basally, punctures changing into fine rough rugulae anteriorly, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin unmodified lateral to eye; anterior portion with a nearly straight and slightly tuberculate medially transverse carina bordering anteriorly a large concavity; anterior angles surface with fine rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly explanate; pronotal basal fossae ill-defined, slightly concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra slightly transverse, elytral combined width/length ratio 1.3; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, finely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posteroventral margin rather thin, evenly developed, internal edge wide, with a contiguous row of setae along anteroventral edge and few scattered long setae on anterior half, remaining surface with irregular punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle unmodified; anterior surface lacking aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with several unaligned and contiguous setal row along lateral teeth. Mesofemur unmodified on anteroventral edge apically. Mesotibia abruptly widening before apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge angular, lacking distinct emargination internally; external edge more or less flat, bordered anteriorly and posteriorly by an almost complete setal row. Mesotarsus differently shaped than metatarsus, 2-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia abruptly widening before apex in anterior view, anterior surface completely covered with irregular sculpturing and punctures, metatibial posterior surface concave between internal and lateral edge, glossy between punctures. Metatarsus 2-segmented (Fig. 127), first segment extremely elongate, approximately 5 times as long as wide at apex, with anteroventral carina indistinguishable. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with more than three unaligned row of setae laterally, narrowly glabrous medially; sternite 7 approximately longitudinally flat medially, as long as segment 5–6 combined along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 92–93). Parameres laterally concave before apex; surface smooth, glossy apically.

**Measurements** (27 males, 16 females). Length: male 12.5–17.0 (14.7±1.2), female 13.5–17.0 (15.6±0.9) mm.

**Primary type data.** Holotype male (CEMT): [BRASIL: MG/ Fazenda Pontinha / Cordisburgo, XII.1997/ F. Vaz-de-Mello]; [WORLD/ SCARAB./ DATABASE/ WSD00017159]; [HOLOTYPE/ *Dendropaemon/ vazdemelloi* n.sp./ Génier & Arnaud, 2014]

**Material examined.** **BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 female, 3 males (incl. 4 paratypes) (CPFA, IRSNB); BAHIA, Encruzilhada, (15°31'47"S, 40°54'43"W), xi.2012, coll. P. Wagner—1 male (paratype) (CEMT); DISTRITO FEDERAL, IBAMA, (15°46'1"S, 47°51'34"W), 2.x.1997, coll. F.N. Gouveia—1 male (paratype) (CEMT); Planaltina, Brasília, (15°37'S, 47°40'W), 19.xi.2012, coll. C.M. Oliveira—1 female (paratype) (CEMT); MINAS GERAIS, Fazenda Pontinha, Cordisburgo, elev. 700 m (19°8'53"S, 44°12'1"W), i.1994, coll. F.Z. Vaz de Mello—1 female, 5 males (incl. 6 paratypes) (BCRC, CEMT, CMNC, WDEC); same locality, xii.1997, coll. F.Z. Vaz de Mello—6 females, 20 males (incl. holotype, 24 paratypes) (BDGC, CEMT, CMNC, MZLU, PMOC); same locality, i.1999, coll. Falqueto & Vaz de Mello—4 females, 2 males (incl. 6

paratypes) (CEMT, CMNC); same locality, i.2004, coll. F. Vaz de Mello—1 female, 2 males (incl. 3 paratypes) (CEMT); same locality, i.2000, coll. F. Z. Vaz de Mello—1 female, 6 males (incl. 7 paratypes) (CEMT, CMNC); same locality, xii.1993, coll. F. Z. Vaz de Mello—1 female (paratype) (CPFA); same locality, i.1999, coll. F. Vaz de Mello—1 male (paratype) (PMOC); same locality, 3.ix.1996, coll. F. Vaz de Mello—1 female, 2 males (incl. 3 paratypes) (BDGC); Montes Claros, (16°44'13"S, 43°51'53"W), 1904–1905, coll. Vincart—1 female (paratype) (IRSNB); São Lourenço, (22°7'3"S, 45°3'6"W), 20.i.1979, coll. C. Junios—1 female (paratype) (CPFA); SÃO PAULO, Ipiranga, (23°35'28"S, 46°36'32"W), xi.1962, coll. Martínez—1 female (paratype) (CMNC).

**Etymology.** *Vazdemelloi*, a patronym in honor of Professor Fernando Z. Vaz de Mello. Fernando, in addition to being a friend and collaborator on various projects to both authors, is a leading Scarabaeologist in Brazil and has collected long series of this species at the Fazenda Pontinha in Minas Gerais.

**Natural history.** See Vaz-de-Mello & Génier 2009.

**Remarks.** Females differ by their lower clypeofrontal carina which is less strongly tuberculate medially and less concave frons, the anterior pronotal carina is more posteriorly arcuate laterally and the concavity much shallower. Variation is restricted to size.

### ***Dendropaemon (Rutilopaemon) Génier & Arnaud, new subgenus***

**Type species:** *Dendropaemon refulgens* Waterhouse, 1891; monotypy.

**Description.** Size large. Habitus rectangular in dorsal view, parallel sided; with metallic sheen on head, pronotum and elytra. Body moderately compressed dorsoventrally. Clypeal edge emarginate on external side of each clypeal tooth; clypeal teeth triangular. Pronotum with moderate punctures on disc, punctures larger and more or less confluent and forming rugulae anteriorly; anterior margin flat lateral to eyes; lateral fossae more or less oval, simple. Elytral base lacking margin. Meso and metatarsi similar in shape, three segmented, first segment more than three times as long as wide at apex, last segment spiniform, lacking setae apically.

**Etymology.** “*Rutilans*” (glowing red) a Latin adjective pertaining to intense red sheen of the dorsum of the only species included in the subgenus, with the suffix “*paemon*” to keep the naming scheme similar to the genus. Gender masculine.

### **33. *Dendropaemon (Rutilopaemon) refulgens* Waterhouse, 1891**

(Figs. 33, 128, 147, 160)

*Dendropaemon refulgens* Waterhouse **1891**, *Ann. Mag. Nat. Hist.* 6 8: 56 (original description)

*Dendropaemon refulgens*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon refulgens*: Olsoufieff **1924**, *Insecta* 13: 125 (monograph)

*Dendropaemon refulgens*: refulgens: Blut **1939**, *Arch. Naturg.* (N.F.) 8: 271 (monograph)

*Dendropaemon refulgens*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon refulgens*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon (D.) refulgens*: Martínez & Clavijo **1990**, *Bol. Ent. Ven. N.S.* 5: 155 (misidentification)

*Dendropaemon refulgens refulgens*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon refulgens*: Escobar **2000**, *Mon. Terc. Mil.* 1 1: 208 (faunistic)

*Dendropaemon (D.) refulgens*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)

*Dendropaemon refulgens*: Barbosa **2008**, *Comm. Scar.*: 64 (comment)

**Type locality.** Cayennae.

**Diagnosis.** The large size (17.5 mm), rather thick body combined with the dorsum red metallic sheen, the slender metatibia which is glossy between punctures in anterior view and the very long pilosity of abdominal sternites 3–6 will separate *D. refulgens* from all other species in the genus.

**Description.** Male holotype (Fig. 33). **Body.** Body large, length 17.5 mm, maximum width 10.0 mm; body oval in dorsal view; dorsum slightly convex. **Color.** Dorsal surface black, glossy, with red metallic sheen; head with red metallic sheen on posterior portion of clypeus, genae and frons; pronotum with red metallic sheen; elytra with uniform red metallic sheen; ventrum reddish brown to dark brown; pygidium with red metallic sheen; legs black, with faint red metallic sheen on some portions. **Head.** Clypeus broadly arcuate, anterior portion upturned;



clypeal teeth triangular; clypeal median emargination v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt tubercles, transversely tumescent; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly sinuous medially in frontal view; eyes small in dorsal view, interocular ratio 5.6. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum finely punctate basally, punctures changing into fine blunt rugulae anterolaterally, with an ill-defined shallow longitudinal depression on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a strongly tri-sinuous carina produced into an acute tubercle medially, carina weakly defined on each side of tubercle; anterior angles surface with more or less rough and irregular fine tubercles, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions strongly explanate; pronotal basal fossae ill-defined, moderately concave; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.2; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide basally and regularly tapering toward apex, ill-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, stria 1 well-defined apically, connecting to marginal stria; interstriae strongly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe angularly produced anteromedially, ventral ridge ill-defined, triangular. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some well-defined punctures externally to median carina, surface between punctures finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia rather slender, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge simply sinuate, lacking deep emargination; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment elongate, more than three times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge slightly enlarged beyond tibial insertion, surface glossy, anterior surface lacking longitudinal sulcus. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface with distinct row of setae, with fine irregular punctures on a glossy surface, metatibial posterior surface convex between internal and lateral edge, glossy between punctures. Metatarsus 3-segmented (Fig. 128), first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex; sternites 4–6 with more than three unaligned row of setae laterally, narrowly glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia.** Parameres unknown.

**Measurements** (1 male). Length: 17.5 mm.

**Primary type data** (Fig. 147). Holotype male (BMNH): [Type] disc with red border; [67 45]; [400.] handwritten; [Cayennae] handwritten; [Refulgens/ Reiche/ Cayennae] handwritten; [TYPE] red card; [Dendropemon/ refulgens/ (Type) Waterh.] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016503]; [HOLOTYPE/ *Dendrop[a]emon/ refulgens/ Waterhouse, 1891*] red card.

**Material examined.** Primary type only.

**Natural history.** Unknown.

**Remarks.** Female and variation unknown.

The holotype is missing the left tibia and tarsus in addition to having the right tarsus damaged apically. For this reason we can only suggest that the number of segments of the mesotarsus is 3. In all other species the number of tarsal segment is always identical for the meso- and metatarsi. However, this fact can be confirmed when more material becomes available. The abdominal cavity has also been cleared and stuffed with cotton and in the process the aedeagus was unfortunately discarded.

## *Dendropaemon (Streblopaemon)* Génier & Arnaud, new subgenus

**Type species:** *Dendropaemon fractipes* Felsche, 1909; monotypy.

**Description.** Size large. Habitus rectangular in dorsal view, parallel sided; lacking metallic sheen on head, pronotum and elytra. Body strongly compressed dorsoventrally. Clypeal edge acutely emarginate on external side of each clypeal tooth; clypeal teeth broadly triangular. Pronotum with moderate punctures on disc, punctures larger anteriorly; anterior margin unmodified lateral to eyes; lateral fossae more or less oval, simple. Elytral base lacking margin. Meso and metatarsi similar in shape, three segmented, first metatarsal segment more than three times as long as long as wide at apex, last segment spiniform, lacking setae apically.

**Etymology.** “*Streblos*” (twisted, crooked) a Greek adjective pertaining to the mesotibial shape of the only species included in the subgenus, with the suffix “*paemon*” to keep the naming scheme similar to the genus. Gender masculine.

### 34. *Dendropaemon (Streblopaemon) fractipes* Felsche, 1909

(Figs. 34, 94–95, 129, 149, 160)

*Dendropaemon fractipes* Felsche 1909, *Deut. Ent. Zeit.* 1909: 756 (original description)

*Dendropaemon fractipes*: Gillet 1911, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon fractipes*: Olsoufieff 1924, *Insecta* 13: 126 (monograph)

*Dendropaemon fractipes*: Pessôa & Lane 1936, *Rev. Biol. Hygiene* 7: 90 (identification key, comment)

*Dendropaemon fractipes*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 270 (monograph)

*Dendropaemon fractipes*: Pessôa & Lane 1941, *Arq. Zool. S. Paulo* 2: 490 (identification key, comment)

*Dendropaemon fractipes*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon (D.) fractipes*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon fractipes*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (D.) fractipes*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

**Type locality.** Demerara.

**Diagnosis.** The anteroposteriorly compressed mesotibia of *D. fractipes* is unique in the genus.

**Description.** Female holotype (Fig. 34). **Body.** Body large, length 19.0 mm, maximum width 9.0 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface black, glossy, lacking metallic sheen; ventrum black; pygidium black; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination broadly v-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a well-defined semicircular carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae anteriorly and small rough irregular tubercles posteriorly; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small irregular tubercles, transversely tumescent; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge slightly emarginate medially in frontal view; eyes very small in dorsal view, interocular ratio 6.5. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.6; disc of pronotum minutely punctate, puncture slightly larger and denser anteriorly and laterally, with a fine ill-defined longitudinal sulcus on posterior two-third; pronotal anterior margin unmodified lateral to eye; anterior portion with a fine transverse carina bluntly and transversally tuberculate medially; anterior angles surface finely granulate, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions slightly emarginate medially in dorsal view; pronotal basal fossae ill-defined, slightly concave; posterior margin ill-defined on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.1; elytral base lacking distinct margin, simply convex; elytral striae 1–4 fine and well-defined, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae flat, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina well-defined, extending laterally; metasternal median lobe angularly produced anteromedially, ventral ridge absent. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posterointernal margin rather thin, uneven, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half,

remaining surface with irregular punctures and glossy. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface with reduced aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with coarse irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anterointernal edge apically. Mesotibia internal edge lobate medially, anterior surface compressed medially along lateral edge; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less flat, with irregular setiferous punctures and microsculpture. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur elongate, internal and lateral edges mostly parallel in ventral view, more than twice as long as wide, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with an irregular fine sulcus medially. Metatibia rather slender, gradually widening toward apex in anterior view, anterior surface completely covered with irregular sculpturing and punctures, metatibial posterior surface irregular between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 3-segmented (Fig. 129), first segment elongate, more than three times as long as wide at apex, with anterointernal carina ill-defined. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, shorter than segment 6 along midline; pygidium with mixed minute and fine punctures on disc.

**Measurements** (5 males, 8 females). Length: male 15.0–20.0 (17.8±1.9), female 17.0–19.5 (18.3±0.8) mm.

**Primary type data** (Fig. 149). Holotype female (MTD): [Demerara] handwritten; [Coll. C. Felsche/ Kauf 20, 1918] green card; [Staatl. Museum für/ Tierkunde Dresde]; [Types] red card; [fractipes/ m./ Surinam] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00002077]; [HOLOTYPE/ *Dendrop[a]emon/ fractipes/ Felsche, 1909*] red card; [Dendropaemon/ fractipes/ Felsche, 1909/ vid. Génier & Arnaud, 2009]

**Material examined.** **ARGENTINA:** MISIONES, San Ignacio, (27°16'S, 55°32'W), iv.1948, coll. [anonymous]—1 female (WDEC); **BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 female, 1 male (BMNH, ZMHB); DISTRITO FEDERAL, Brasília, (15°47'S, 47°55'W), 19.xi.2000, coll. N. Dégallier—1 male (CPFA); ESPIRITO SANTO, Jabaquara, (20°42'S, 40°40'W), 21.xii.1933, coll. [anonymous]—1 female (CMNC); SÃO PAULO, São José dos Campos, (23°11'S, 45°52'W), 14–17.x.1960, coll. D.L. Tiemann—1 male (WDEC); same locality, 2.i.1963, coll. D. Tiemann—1 male (WDEC); GUYANA: DEMERARA-MAHAICA, Demerara, (6°48'N, 58°10'W), [no date], coll. [anonymous]—1 female (holotype) (MTD); **[NO DATA]:** -, coll. [anonymous]—4 females, 1 male (BMNH, CPFA, MNHN).

**Natural history.** Unknown. The mesotibial configuration, which is very similar to other myrmecophilous beetles suggest that *D. fractipes* is also an inquiline.

**Remarks.** Males differ in having the clypeofrontal carina distinctly bituberculate and the anterior transverse pronotal carina strongly sinuous and flanked anteriorly on each side by a rather deep concavity. Parameres (Figs. 94–95) sharply toothed and with fine rough tubercles apically.

Variation, aside for size, the size and density of the punctation will vary as well as the sculpturing on the clypeal posterior surface. In some specimens, including the holotype, the surface is covered with fine irregular and rather rough tubercles, in other specimens the sculpturing is similar to the anterior clypeal surface.

### *Dendropaemon (Sulcopaemon)* Génier & Arnaud, new subgenus

**Type species:** *Dendropaemon fascies* Blut, 1939; present designation.

**Description.** Size small to moderate. Habitus elongated, parallel sided; with metallic sheen on head, pronotum and elytra. Body strongly compressed dorsoventrally. Clypeal edge distinctly emarginate on external side of each clypeal tooth; clypeal teeth acutely angular to ogival. Pronotum with some fine punctures on disc; anterior margin flat lateral to eyes; lateral fossae rounded and bordered anteriorly by a sharp carina. Elytral base lacking margin. Meso and metatarsi similar in shape, three segmented with the exception of *D. (S.) quadratus* Laporte which has two-segmented meso and metatarsi, first segment approximately two times as long as wide at apex, last segment spiniformly produced internally, with setae apically.

**Etymology.** “*Sulcus*” (furrow, groove) a Latin adjective pertaining to the deeply sulcate pronotum and elytra of the species included in the subgenus, with the suffix “*paemon*” to keep the naming scheme similar to the genus. Gender masculine.

### 35. *Dendropaemon (Sulcopaemon) fascies* Blut, 1939

(Figs. 35, 96–97, 130, 150, 160)

*Dendropaemon fascies* Blut 1939, *Arch. Naturg. (N.F.)* 8: 274 (original description)

*Dendropaemon fascies*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon (D.) fascies*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon haroldi*: Martínez & Clavijo 1990, *Bol. Ent. Ven. N.S.* 5: 155 (biology)

*Dendropaemon (D.) fascies*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon* sp. aff. *fascies*: Larsen et al. 2006, *Col. Bull.* 60: 319 (biology)

**Type locality.** Sa. Trinidad [=Misión Jesuítica de la Santísima Trinidad], Paraguay.

**Diagnosis.** The small size combined with the three-segmented meso- and metatarsi with the second segment being subequal in length to the first segment will place the species in the *quadratus* species complex. The lateral pronotal fossae with the sharply carinate anterior edge will separate it from most other species in the group. The three-segmented meso- and metatarsi will separate it from *D. quadratus*, the rounded pronotal lateral edges and the obtuse anterior angles in dorsal view will separate it from *D. nitidicollis* and the elytral striae 1 going straight to the apical margin will separate it from *D. similis*.

**Description.** Male lectotype (Fig. 35). **Body.** Body small, length 9.5 mm, maximum width 4.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except on small areas along anteromedian carina and adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum black; pygidium with green metallic sheen; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth acutely triangular; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with ill-defined rugulae and minute tubercles laterally, smooth internally, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate throughout, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a tri-sinuous carina, carina produced into a tubercle medially; anterior angles surface with fine blunt longitudinal rugulae, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae rounded and bordered anteriorly by a sharp carina; lateral portions unmodified; pronotal basal fossae very small and more or less rounded; posterior margin ill-defined on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, very deeply impressed basally, elytral striae 5 similar to 4 on disc, stria punctures ill-defined throughout, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface largely glossy medially with more or less defined alutaceous microsculpture along striae. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge, remaining surface more or less irregularly punctate. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface lacking aligned row of setae internally, with few aligned and isolated setiferous punctures only, surface coarsely microsculptured between punctures; posterior surface with irregular rugose punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur obtusely angular on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct



depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy basally and slightly irregular apically, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 3-segmented (Fig. 130), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 slightly longitudinally concave medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 96–97). Parameres produced onto a lobe laterally; surface smooth, glossy apically.

**Measurements** (12 males, 15 females). Length: male 7.0–9.5 (8.8±0.8), female 7.5–10.5 (8.8±0.7) mm.

**Primary type data** (Fig. 150). Lectotype male (ZMHB) **present designation:** [Paraguay/ 1913] partly handwritten; [♂]; [Typus] red card; [Dendropaemon/ fascies Blut./ Sa. Trinidad, Paraguay] handwritten; [SYNTYPUS/ Dendropaemon/ fascies Blut, 1939/ labelled by MNHUB 2009] red card; [WORLD/ SCARAB./ DATABASE/ WSD 00016766]; [LECTOTYPE/ *Dendropaemon/ fascies/* Blut, 1939/ dés. Génier & Arnaud] red card; [Dendropaemon ♂/ fascies/ Blut, 1939/ vid. Génier & Arnaud, 2009].

**Material examined. ARGENTINA:** MISIONES, [unspecified locality], [no date], coll. C. Bruch—1 male (IRSNB); **BRAZIL:** MATO GROSSO DO SUL, Guaicurus, (20°6'30"S, 56°47'46"W), xi.1934, coll. [anonymous]—1 female (WDEC); **PARAGUAY:** [unspecified locality], [no date], coll. [anonymous]—1 female (SMF); CENTRAL, Asunción, (25°18'17"S, 57°39'44"W), 1891, coll. Revoil—1 female (MNHN); same locality, ix–x.1904, coll. Anisits—1 female (NMPC); San Lorenzo, (25°21'S, 57°30'30"W), xi.1976, coll. N.G. Romero—1 female (CMNC); same locality, xi.1978, coll. N.G. Romero—2 males (CMNC); same locality, 9.x.1949, coll. [illegible]—1 male (CMNC); CONCEPCIÓN, Campo Zanja Morotí, (22°31'48"S, 57°13'48"W), 13.xi.2004, coll. C. Aguilar—1 female (WDEC); Cororó, (23°24'14.76"S, 56°30'47.52"W), 15.xii.1995, coll. C. Aguilar J.—1 female (WDEC); same locality, 27.ii.1997, coll. B. Garcete B.—1 female (WDEC); Horqueta, (23°19'41"S, 57°3'59"W), xii, coll. [anonymous]—1 male (CAS); San Salvador, (22°49'30"S, 57°47'50"W), [no date], coll. Dr. Bohls—3 females (incl. 3 paralectotypes) (MTD); GUAIRÁ, Villarrica, (25°47'S, 56°27'W), xii.1943, coll. Schade—1 male (CMNC); ITAPÚA, Sa. Trinidad [=Misión Jesuítica de la Santísima Trinidad], (27°7'56"S, 55°42'9"W), x.1914, coll. [anonymous]—2 females (incl. 1 paralectotype) (CPFA, ZMHB); same locality, 1913, coll. [anonymous]—1 male (lectotype) (ZMHB); SAN PEDRO, Cororó, Río Ypané, (23°25'38"S, 56°29'57"W), xi.1979, coll. Martínez—2 females, 3 males (CMNC); same locality, ii.1979, coll. Martínez—1 male (CMNC); **URUGUAY:** MONTEVIDEO, Montevideo, (34°51'29"S, 56°10'15"W), [no date], coll. [anonymous]—1 male (CPFA).

**Natural history.** Martínez & Clavijo (1990) report that *D. haroldi* (almost certainly a misidentification for *D. fascies* as *D. haroldi* has not been reported from Paraguay to date) “are generally found in areas of loose soils after rains and usually in the morning. Some of these were found at ground level flying or walking on the sand after a storm by one of the authors in Paraguay”.

**Remarks.** Females differ in having the pronotal anterior carina simply broadly arcuate posteriorly and set very close to the anterior pronotal margin. In addition, sternite 7 is nearly flat medially.

Variation occurs mostly in the extent of the green metallic sheen on pronotum; the extent of the sculpturing on genae and the presence of microsculpture on elytral interval along striae. In most specimen the elytral intervals are completely glossy.

**Nomenclature and taxonomy.** In Blut's original description it is stated that types are deposited in the Berlin and Dresden museums. Based on the remarks on type specimens, Blut had seen 1 male and 5 female specimens (1 male, 2 females from Berlin and 3 females from Dresden) for a total of 6 specimens. In the material sent for study from Berlin, a male and a female were present, and all three females were sent from Dresden. Each of the five specimens are labeled as “Typus” and they are referred as “Paratypus” in Blut's description. Because there are no indication of a primary type designation in the description or from the labeled specimens these 5 individuals are considered part of the syntype series. Therefore, we here designate the male specimen from the Museum für Naturkunde in Berlin the lectotype of *Dendropaemon fascies* Blut, 1939 in order to select the male specimen with the best diagnostic character which include well developed secondary sexual characters. The specimen has some damage at the abdomen apical portion of the elytra which suggest it might have been dissected to extract the aedeagus, however the aedeagus is not attached to the specimen's pin. We did not attempt to dissect the lectotype as

it might damage it further. We have dissected and illustrated the aedeagus of other specimens which fit perfectly the external morphology of the lectotype.

### 36. *Dendropaemon (Sulcopaemon) haroldi* Olsoufieff, 1924

(Figs. 36, 98–99, 151, 160)

- Dendropaemon haroldi* Olsoufieff 1924, *Insecta* 13: 130 (original description)  
*Dendropaemon haroldi*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 285 (monograph)  
*Dendropaemon haroldi*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)  
*Dendropaemon (D.) haroldi*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)  
*Dendropaemon haroldi*: Arnaud 1982, *Rev. Fr. Ent. (N.S.)* 4: 117 (lectotype designation)  
*Dendropaemon haroldi*: Martínez & Clavijo 1990, *Bol. Ent. Ven. N.S.* 5: 155 (misidentification)  
*Dendropaemon haroldi*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon (D.) haroldi*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

**Type locality.** Brazil.

**Diagnosis.** Differs from all other species by its small size combined with a strong metallic sheen, lateral pronotal depressions bordered anteriorly with a fine sharp carina and coarsely microsculptured pronotal longitudinal sulcus, elytral striae and interstriae and small rounded and rather deeply impressed pronotal basal fossae.

**Description.** Male lectotype (Fig. 36). **Body.** Body small, length 7.5 mm, maximum width 3.5 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface brown, glossy, with blue, green and coppery metallic sheen; head brown along anterior edge of clypeus, with green and coppery metallic sheen on remaining surface; pronotum with blue, green and coppery metallic sheen; elytra with blue and green metallic sheen; ventrum reddish brown to dark brown; pygidium with faint greenish metallic sheen; legs reddish brown to dark brown. **Head.** Clypeus semicircular, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface with a fine v-shaped carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with ill-defined rugulae and minute tubercles laterally, smooth internally, transversely tumescent; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.3; disc of pronotum finely punctate basally, punctures changing into fine blunt rugulae anterolaterally, with a sharply defined longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a medially sinuous sharp carina transversely tuberculate medially; anterior angles surface with fine blunt more or less longitudinal rugulae, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae rounded and bordered anteriorly by a sharp carina; lateral portions unmodified; pronotal basal fossae small, rounded and rather deeply impressed; posterior margin ill-defined, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 0.9; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, very deeply impressed basally, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate throughout, surface glossy medially, with coarse alutaceous microsculpture along striae. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posterointernal margin rather thin, evenly developed, internal edge rather narrow, with a contiguous row of setae along anterointernal edge, remaining surface smooth along setae. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface lacking aligned row of setae internally, surface coarsely microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view,

anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on more than half the length. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy externally with distinct transverse microsculpture internally, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 deeply longitudinally concave medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 98–99). Parameres strongly laterally lobate apically, apex as wide as parameres base in dorsal view; surface smooth, glossy apically.

**Measurements** (11 males, 12 females). Length: male 6.5–9.5 (7.6±0.9), female 6.0–9.5 (7.9±1.0) mm.

**Primary Type data** (Fig. 151). Lectotype male (MNHN): [Bresil] handwritten; [LAFERTÉ/ 4822]; [Ex.Musæo/ DSharp]; [Dendropaemon haroldi sp. n./ det. G. Olsoufieff] partly handwritten; [Museum Paris/ ex. Coll./ R.Oberthur] green card; [WORLD/ SCARAB./ DATABASE/ WSD00016787]; [Dendropaemon/ haroldi Ols./ LECTOTYPE/ P.ARNAUD DET 1982] partly handwritten; [*Dendropaemon* ♂/ *haroldi*/ Olsoufieff, 1924/ vid. Génier & Arnaud].

**Material examined. BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 female, 3 males (incl. lectotype, 1 paralectotype) (IRSNB, MNHN, ZMHB); GOIÁS, Dianópolis, 1/24/1962, coll. J. & B. Bechyne—1 male (BCRC); Fazenda Monjolinho, Corumbá, (15°55'S, 48°48'W), 8.vi.1942, coll. F. Lane—1 male (CMNC); Goiatuba, (18°0'40"S, 49°22'10"W), ii.1947, coll. J. Guérin—1 male (CMNC); Sussuapara [= Bela Vista de Goiás], (16°58'22"S, 48°57'10"W), [no date], coll. Ch. Pujol—1 female (MNHN); Distr. Bezerra, Fazenda Santo Antonio, Formosa, (15°18'27"S, 47°11'45"W), 28.i.–5.ii.2012, coll. Excursão Dicipina Entomologia de Verão—2 females (CEMT); MATO GROSSO, Vale da Solidão, Município Diamantino, (14°22'31"S, 56°7'30"W), 31.i.2009, coll. D.C.T. Oliveira—1 male (CEMT); MINAS GERAIS, circa Poço Bonito, Ingai, Lavras, (21°19'47"S, 44°58'13"W), xi.2002, coll. F. Z. Vaz de Mello—2 females (CEMT); Escola Superior de Agricultura de Lavras, Lavras, (21°13'58"S, 44°59'36"W), 22.x.1993, coll. E.B. Alves—1 male (CEMT); Fazenda Pontinha, Cordisburgo, elev. 700 m (19°8'53"S, 44°12'1"W), xii.1993, coll. F. Z. Vaz de Mello—1 female, 2 males (CEMT); Lavras, (21°14'45"S, 44°59'59"W), 28.i.1999, coll. J.N.C. Louzada—1 female (CEMT); same locality, 12.v.2004, coll. T.C. Pereira—1 female (CEMT); Paracatu, (17°13'21"S, 46°52'31"W), xi.1997, coll. S. Lourenço jr.—1 female (CEMT); Uberaba, (19°45'S, 47°56'W), [no date], coll. [anonymous]—2 females, 1 male (CPFA, IRSNB).

**Natural history.** Unknown, except for a specimen collected in cerrado.

**Remarks.** Females differ in having the anteromedian pronotal carina straighter and the median tubercle less developed.

Variation mostly occurs in the metallic tinge which, in the lectotype, varies from yellowish-green to purplish-blue. Other specimens studied are more homogenous in coloration. The coarseness and extent of the microsculpture on pronotal longitudinal sulcus and elytral interval varies slightly but are more extensive than in *D. nitidicollis*, its sister species.

### 37. *Dendropaemon (Sulcopaemon) latistriatus* Génier & Arnaud, new species

(Figs. 37, 100–101, 161)

**Type locality.** Cororó, Concepción, Paraguay.

**Diagnosis.** Differs from all other species in the genus by its evenly wide and deeply impressed elytral striae on disc combined with the elytral striae 6 and 7 being atrophied and largely reduced to an irregular row of punctures.

**Description.** Male holotype (Fig. 37). **Body.** Body small, length 9.5 mm, maximum width 4.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except on small areas along anteromedian carina and adjacent to lateral fossae; elytra with

uniform green metallic sheen; ventrum black; pygidium with green metallic sheen; legs black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth acutely triangular; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin well-defined and sharply carinate posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine sharp tubercle and rugulae on disc, lacking distinct transverse carina, simply convex; clypeofrontal carina low, more than 6 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge broadly arcuate in frontal view; eyes small in dorsal view, interocular ratio 5.9. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate throughout, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a tri-sinuous carina, carina produced into a tubercle medially; anterior angles surface with fine blunt longitudinal rugulae, similar to lateral margin along posterior edge of anterior margin; lateral fossae simply rounded, concave; lateral portions unmodified; pronotal basal fossae very small and more or less rounded; posterior margin ill-defined on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 0.9; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide on disc, abruptly tapering on apical declivity, very deeply impressed from base to apical declivity, elytral striae 5 atrophied, lacking fine carina on each side on disc, stria punctures minute, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge well-defined, keel-shaped. **Legs.** Profemur posterior surface flat and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge, remaining surface more or less irregularly punctate. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface lacking aligned row of setae internally, surface coarsely microsculptured between punctures; posterior surface with irregular rugose punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur obtusely angular on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy basally and slightly irregular apically, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex, segment 6 slightly concave; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 deeply longitudinally concave medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 100–101). Parameres produced onto a lobe laterally; surface smooth, glossy apically.

**Measurements** (1 male, 1 female). Length: male 9.5, female 8.5 mm.

**Primary type data.** Holotype male (CMNC): [PARAGUAY: CONCEPCIÓN/ Cororó/ 15.XII.1995/ Colr.: C. Aguilar J.]; [WORLD/ SCARAB./ DATABASE/ WSD00017480]; [HOLOTYPE/ *Dendropaemon/ latistriatus* n.sp./ Génier & Arnaud, 2014] red card.

**Material examined.** PARAGUAY: CONCEPCIÓN, Cororó, (23°24'14.76"S, 56°30'47.52"W), 8.xi.1992, coll. C. Aguilar J.—1 female (paratype) (WDEC); same locality, 15.xii.1995, coll. C. Aguilar J.—1 male (holotype) (WDEC).

**Etymology.** *Latistriatus*, *latus*+*striatus*, a Latin adjective referring to the configuration of the elytral striae.

**Natural history.** Unknown.

**Remarks.** The female differs in having the clypeogenal carina very low, the pronotal anteromedian carina slightly tuberculate medially and the abdominal sternite 7 flat. Interestingly, in this species the abdominal sternite 8 is only slightly longitudinally reduced medially as opposed to other *Dendropaemon* species.



Variation is restricted to the extent of metallic sheen on head and pronotum and the uniform green metallic sheen of elytra in the second specimen known.

The holotype male is missing the antennae, mouth parts and both metatarsus suggesting that it was found dead and might have been partly dismantled by ants. The description of the metatarsus is based on the female specimen.

### 38. *Dendropaemon (Sulcropaemon) nitidicollis* Olsoufieff, 1924

(Figs. 38, 102–103, 131, 152, 160)

*Dendropaemon nitidicollis* Olsoufieff 1924, *Insecta* 13: 130 (original description)

*Dendropaemon nitidicollis*: Blut 1939, *Arch. Naturg. (N.F.)* 8: 273 (monograph)

*Dendropaemon subcylindricus* Blut 1939, *Arch. Naturg. (N.F.)* 8: 283 (original description) **new synonymy**

*Dendropaemon nitidicollis*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon subcylindricum*: Blackwelder 1944, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)

*Dendropaemon (D.) nitidicollis*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon subcylindricum*: Edmonds 1972, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)

*Dendropaemon nitidicollis*: Arnaud 1982, *Rev. Fr. Ent. (N.S.)* 4: 117 (lectotype designation)

*Dendropaemon nitidicollis*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon subcylindricum*: Vaz-de-Mello 2000, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (D.) nitidicollis*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon (D.) subcylindricus*: Arnaud 2002, *Col. Monde* 28: 15 (mention)

*Dendropaemon (D.) nitidicollis*: Vaz-de-Mello & Génier 2009, *Col. Bull.* 63: 365 (biology)

**Type locality.** Jatahy, Etat de Goyaz.

**Diagnosis.** The small size combined with the three-segmented meso- and metatarsi with the second segment being subequal in length to the first segment will place the species in the quadratus species complex. The small average size (less than 8.5 mm) combined with the subangular anterior pronotal angles in dorsal view and the only minutely to finely punctate pronotal surface anterior to lateral fossae will separate it from other species in the quadratus complex.

**Description.** Male lectotype (Fig. 38). **Body.** Body small, length 8.0 mm, maximum width 4.0 mm; body subrectangular in dorsal view; dorsum slightly convex. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except on small area adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum reddish brown to dark brown; pygidium with green metallic sheen; legs reddish brown to dark brown. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth ogival; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine blunt transverse rugulae laterally, minutely punctate internally, transversely tumescent; clypeofrontal carina low, more than 6 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes very small in dorsal view, interocular ratio 6.0. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.3; disc of pronotum minutely punctate throughout, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a broad and fine tectiform carina tuberculate medially; anterior angles surface with fine blunt longitudinal rugulae, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae rounded and bordered anteriorly by a sharp carina; lateral portions unmodified; pronotal basal fossae very small and more or less rounded; posterior margin ill-defined on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, very deeply impressed basally, elytral striae 5 similar to 4 on disc, striae punctures minute basally becoming larger and deeper toward apex, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posteroventral

margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface lacking aligned row of setae internally, surface glossy or feebly microsculptured; posterior surface lacking punctures externally to median carina, surface finely and irregularly microsculptured, with a single interrupted setal row along lateral teeth. Mesofemur obtusely angular on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge finely crenulate, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface with ill-defined irregular microsculpture, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 3-segmented (Fig. 131), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 deeply longitudinally concave medially, subequal in length to segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 102–103). Parameres produced onto a lobe laterally; surface smooth, glossy apically.

**Measurements** (6 males, 2 females). Length: male 6.0–8.0 (6.9±0.7), female 7.5–8.5 (8.0±0.7) mm.

**Primary type data.**

*Dendropaemon nitidicollis* Olsoufieff (Fig. 152). Lectotype male (MNHN); [Jatahy/ Etat de Goyaz/ Ch.Pujol 1895–96]; Museum Paris/ ex Coll./ R.Oberthur] green card; [Dendr. Nitidicollis sp. n./ det. G. Olsoufieff] partly handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016822]; [Dendropaemon/ nitidicollis Ols./ LECTOTYPE/ P.ARNAUD DET 1982] partly handwritten, red border; [*Dendropaemon* ♂/ *nitidicollis*/ Olsoufieff, 1924/ vid. Génier & Arnaud, 2009].

*Dendropaemon subcylindricus* Blut. Lectotype male (MTD) **present designation:** [GOYAS/ Rio verde]; [♂]; [Coll. C. Felsche/ Kauf 20, 1918] green card; [Typus] red card; [Dendropaemon ♂/ subcylindricus/ Blut/ Rio Verde, Goyaz] handwritten, black border; [WORLD/ SCARAB./ DATABASE/ WSD00016826]; [LECTOTYPE/ *Dendropaemon*/ *subcylindricus*/ Blut, 1939/ dés.: Génier & Arnaud, 2014] red card; [Dendropaemon ♂/ nitidicollis/ Olsoufieff, 1924/ dét. Génier & Arnaud, 2009].

**Material examined.** **BRAZIL:** GOIÁS, Rio Verde, (17°47'50"S, 50°54'0"W), [no date], coll. [anonymous]—1 female, 1 male (lectotype, paralectotype) (MTD); Bom Jardim de Goiás, (16°12'10"S, 52°10'32"W), ii.1998, coll. Vaz-de-Mello—1 male (CEMT); Jataí, (17°53'S, 51°43'W), [no date], coll. [anonymous]—1 female, 2 males (incl. 2 paralectotypes) (MNHN); same locality, 1895–96, coll. Ch. Pujol—1 female, 2 males (incl. lectotype) (MNHN); same locality, 1898, coll. Ch. Pujol—1 male (MNHN); Mineiros, (17°34'43"S, 52°32'32"W), [no date], coll. [anonymous]—1 male (paralectotype) (MNHN); Rio Verde, (17°47'50"S, 50°54'0"W), [no date], coll. [anonymous]—1 male (CPFA).

**Natural history.** Unknown.

**Remarks.** Females differ in having sternite 7 only slightly concave in lateral view.

Variation, as usual, occurs in the extent of the metallic marking on head and pronotum. The greenish tinge is rather uniform in the sample studied, so is the degree of coarseness and density of punctures.

**Nomenclature and taxonomy.** *D. subcylindricus* Blut, 1939 = *D. nitidicollis* Olsoufieff, 1924, **new synonymy.** The lectotype of *D. subcylindricus* Blut was compared to the lectotype of *D. nitidicollis* Olsoufieff and no external or genitalic differences that could support their placement in two different species was observed.

### 39. *Dendropaemon (Sulcopaemon) quadratus* (Laporte, 1832)

(Figs. 39, 104–105, 132, 153, 160)

*Enicotarsus Quadratus* Laporte **1832**, *Ann. Soc. Ent. Fr.* 1: 403 (original description)

*Enicotarsus quadratus*: Castelnau **1840**, *Hist. Nat. Ins.* 2: 83 (diagnosis, distribution)

*Dendropemon quadratus*: Harold **1869**, *Cat. Col.* IV: 1020 (mentioned as synonym)

*Dendropaemon smaragdinus* Waterhouse **1891**, *Ann. Mag. Nat. Hist.* 6 8: 56 (original description) **new synonymy**  
*Dendropaemon quadratus*: Felsche **1909**, *Deut. Ent. Zeit.* 1909: 757 (comment)  
*Dendropaemon quadratus*: Gillet **1911**, *Col. Cat.* 38: 88 (mentioned as synonym)  
*Dendropaemon smaragdinus*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)  
*Dendropaemon planus* Olsoufieff **1924**, *Insecta* 13: 123 (original description) **new synonymy**  
*Dendropaemon quadratus*: Olsoufieff **1924**, *Insecta* 13: 124 (monograph)  
*Dendropaemon quadratus*: Pessôa & Lane **1936**, *Rev. Biol. Hygiene* 7: 89 (identification key, comment)  
*Dendropaemon planus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 293 (mentioned as synonym)  
*Dendropaemon smaragdinus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 293 (monograph)  
*Dendropaemon quadratus*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 294 (monograph)  
*Dendropaemon smaragdinus Chevrolati* Blut **1939**, *Arch. Naturg. (N.F.)* 8: 295 (original description) **new synonymy**  
*Dendropaemon planus*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropaemon quadratum*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (mentioned as synonym)  
*Dendropaemon smaragdinus*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropaemon smaragdinus chevrolati*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 211 (checklist)  
*Dendropaemon quadratum*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)  
*Dendropaemon (D.) smaragdinus*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 851 (comment taxonomy)  
*Dendropaemon planus*: Arnaud **1982**, *Rev. Fr. Ent. (N.S.)* 4: 117 (lectotype designation)  
*Dendropaemon smaragdinus chevrolati*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon smaragdinus smaragdinus*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)  
*Dendropaemon planus*: Vitolo **2000**, *Rev. Acad. Colomb. Cienc.* 24: 599 (identification key)  
*Dendropaemon (D.) quadratus*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon (D.) smaragdinus*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)  
*Dendropaemon (D.) smaragdinus*: Vaz-de-Mello & Génier **2009**, *Col. Bull.* 63: 365 (biology)

**Type locality.** Jatahy, Etat de Goyaz.

**Diagnosis.** The small size (less than 10.0 mm), with distinct metallic markings combined with the emarginate anterior edge of clypeus on external side of each clypeal tooth will place this species in the *quadratus* complex. It differs from all other species in the *quadratus* complex by the two-(instead of three-) segmented meso- and metatarsi.

**Description.** Male neotype (Fig. 39). **Body.** Body small, length 8.5 mm, maximum width 4.5 mm; body subrectangular in dorsal view; dorsum largely flat. **Color.** Dorsal surface dark brown to black, glossy, with green metallic sheen; head black along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except on small areas along anteromedian carina and adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum black; pygidium with green metallic sheen; legs dark reddish brown to black. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth triangular; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, bordered posteriorly by a more or less regular row of punctures, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine blunt transverse rugulae laterally, minutely punctate internally, transversely tumescent; clypeofrontal carina low, more than 6 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge slightly trilobate in frontal view; eyes small in dorsal view, interocular ratio 4.9. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate throughout, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a medially sinuous sharp carina transversely tuberculate medially; anterior angles surface with fine tubercles laterally and few short longitudinal rugulae internally, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae rounded and bordered anteriorly by a sharp carina; lateral portions unmodified; pronotal basal fossae very small and more or less rounded; posterior margin well-defined, lacking crenulation and setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, distinctly more impressed basally, elytral striae 5 similar to 4 on disc, striae punctures ill-defined throughout, stria 1 well-defined apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy.

**Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe flat, ventral ridge absent. **Legs.** Profemur posterior surface slightly but distinctly convex and glabrous internally, posterointernal margin rather thick, evenly developed, internal edge rather narrow, with a contiguous row of setae



along anterointernal edge and few scattered long setae on anterior half, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface lacking aligned row of setae internally, with few aligned and isolated setiferous punctures only, surface coarsely microsculptured between punctures; posterior surface with irregular rugose punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur angularly produced on anterointernal edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 2-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anterointernally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on median half. Metatibia robust, short, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy externally with distinct transverse microsculpture internally, metatibial posterior surface concave between internal and lateral edge, with transverse microsculpture. Metatarsus 2-segmented (Fig. 132), first segment moderately elongate, approximately two times as long as wide at apex, with anterointernal carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 slightly longitudinally concave medially, shorter than segment 6 along midline; pygidium minutely punctate on disc. **Male genitalia** (Figs. 104–105). Parameres produced into a lobe laterally; surface smooth, glossy apically.

**Measurements** (9 males, 8 females). Length: male 7.5–9.5 (8.3±0.6), female 6.5–10.0 (8.6±1.2) mm.

**Primary type data.**

***Enicotarsus quadratus* Laporte** (Fig. 153). Male neotype (MNHN) **present designation:** [Trinidad/ Goyaz/ Ch.Pujol]; [WORLD/ SCARAB./ DATABASE/ WSD00016803]; [NEOTYPE/ *Enicotarsus/ quadratus*/ Laporte, 1832/ dés. Génier & Arnaud, 2014] red card; [Dendropaemon/ quadratus/ Laporte/ dét. F. Génier, 2009] handwritten.

***Dendrop[aj]emon smaragdinus Waterhouse.*** Holotype male (BMNH): [Type] disc with red border; [67 45]; [TYPE] red card; [Dendropemon/ smaragdinus/ (Type) Waterh.] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016804]; [HOLOTYPE/ Dendrop[aj]emon/ smaragdinus/ Waterhouse, 1891] red card.

***Dendropaemon planus* Olsoufieff.** Lectotype female (MNHN): [Jatahy/ (GOYAZ)] green card; [MUSÉUM PARIS/ 1936/ COLL. A. BOUCOMONT] green card; [Typus] red card; [Dendrop. planus n.sp./ det. G. OLSOUFIEFF] partly handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016805]; [Dendropaemon/ planus Ols./ LECTOTYPE/ P. ARNAUD DET 1982] partly handwritten, red border.

***Dendropaemon smaragdinus chevrolati* Blut.** Holotype female (MTD): [Enicotarsus/ quadratus/ de Lap Bresil/ type] handwritten; [Brasiliën] green card; [Coll. C. Felsche/ Kauf 20, 1918] green card; [♀]; [Dendropaemon/ s. Chevrolati ♀/ Brasiliën.—Type.] handwritten, black border; [viridis/ Perty/ Paraguay] purple border; [WORLD/ SCARAB./ DATABASE/ WSD0016807]; [HOLOTYPE/ *Dendropaemon/ smaragdinus chevrolati*/ Blut, 1939] red card; [Dendropaemon ♀/ quadratus/ (Laporte, 1832)/ dét. Génier & Arnaud, 2009].

**Material examined.** [NO DATA]: -, coll. [anonymous]—1 male (holotype of *D. smaragdinus* Waterhouse) (BMNH); **ARGENTINA:** MISIONES, Dos de Mayo, elev. 500 m (27°1'39"S, 54°40'3"W), vii.1977, coll. R. Foerster—1 female (CPFA); Loreto, (27°18'22"S, 55°32'10"W), i.1956, coll. F.H. Walz—1 male (BDGC); same locality, [no date], coll. A. Ogloblin—1 female (CEMT); same locality, i.1955, coll. F.H. Walz—1 female (CMNC); same locality, xi.1958, coll. Martínez—1 female, 2 males (CMNC); same locality, i.1954, coll. F.H. Walz—1 male (CMNC); **BRAZIL:** [unspecified locality], [no date], coll. [anonymous]—1 male (CPFA); GOIÁS, Jataí, (17°53'S, 51°43'W), [no date], coll. [anonymous]—1 female (lectotype of *D. planus* Olsoufieff) (MNHN); Rio Verde, (17°47'50"S, 50°54'0"W), [no date], coll. [anonymous]—1 female, 1 male (MTD); Trindade, (16°38'52"S, 49°29'53"W), [no date], coll. Ch. Pujol—1 male (neotype) (MNHN); same locality, [no date], coll. [anonymous]—1 female (ZMHB); same locality, [no date], coll. Ch. Pujol—1 female (paralectotype of *D. planus* Olsoufieff) (MNHN); [unspecified locality], [no date], coll. [anonymous]—1 female (holotype of *D. smaragdinus chevrolati* Blut) (MTD); MATO GROSSO DO SUL, UNESP Farm [=Fazenda Experimental da Universidade Estadual Paulista, câmpus de Ilha Solteira], Selvíria, (20°20'2.1"S, 51°24'26.3"W), 18.i.2008, coll. F. Oikawa—1 female (MEFEIS); [NO DATA]: -, coll. [anonymous]—1 female, 1 male (MNHN, MNRJ); **PARAGUAY:** ITAPÚA, Puerto Cantera, (27°13'44"S, 55°36'9"W), xii.1956, coll. F.H. Schade—1 female (CMNC); same locality, xi.1956, coll. Walz—1 male (CMNC).



**Natural history.** A specimen was collected in a pitfall trap baited with *Sus scrofa* dung.

**Remarks.** Females differ in having the anterior pronotal carina straighter and set very close to the anterior margin, the carina is only finely tuberculate medially. The abdominal sternite 7 is also nearly flat medially.

Variation, as usual, occurs in the extent of the metallic marking on head and pronotum. The greenish tinge is rather uniform in the sample studied. The extent and density of the fine tubercles and rugulae on the pronotal anterior angles vary, in some specimens the sculpturing is finer and denser and set on a slightly larger area.

**Nomenclature and taxonomy.** The type of *D. quadratus* is presume destroyed (see comment under *D. ater* on Laporte's collection). Historically, the status of this species has remain unsettled. In the first review of the group, Castelnau (1840) simply copied the description he made in 1832 omitting the Latin diagnosis. Harold (1869), in his catalogue, considered *D. quadratus* as a synonym of *D. viridis*. Felsche (1909) briefly commented Harold's synonymy and suggest that *D. quadratus* cannot be synonymous with *D. viridis* as the meso- and metatarsi are three segmented and are only two segments in *D. viridis*. Felsche stated that the third segment is present but barely visible based on a specimen studied from Chevrolat's collection and labeled as "Enicotarsus quadratus de Cast.-Type". Olsoufieff (1924) discuss again the situation and concluded that *D. quadratus* is indeed a valid species, but do not attempt to settle the issue. Pessôa and Lane (1936) essentially repeat Olsoufieff's observations and questionably leave *D. quadratus* as a synonym of *D. viridis*. Finally, Blut (1939) concluded that the status of *D. quadratus* remain uncertain and is the first author to use the measurements given by Laporte in the original description to suggest that *D. quadratus* cannot be a synonym of *D. viridis* which is distinctly larger. Blut also rightly point out that the specimen from Chevrolat's collection possess only two tarsal segments and not three as stated by previous authors. Furthermore, Blut suggest that *D. quadratus* body size would be similar to those of *D. refulgens*. However, in the end, Blut conclude that the name *D. quadratus* is to be forgotten as he considered the name to be *in litteris*.

The purpose of this work is to address all taxonomic problems pertaining to the genus and therefore we designate a neotype for Laporte's species *D. quadratus* of which the original description meet requirements for being valid. In order to remain as conservative as possible we designate a male specimen from the Museum national d'Histoire naturelle that comply with the original description and has precise locality data.

This specimen matches approximately the size given by Laporte and the very rudimentary description. It also matches the historical specimen from Chevrolat's collection. This specimen differs from the original description by the "[pronotum] très-fortement ponctué avec des espaces lisses", which could correspond to certain *Coprophanaeoides* species. We however, interpret the heavy punctuation as being the sculpturing of the lateral pronotal declivities.

Following the designation of a neotype for *D. quadratus* the following nomenclatural acts can now be implemented (the second epithet being valid):

1) *D. smaragdinus* Waterhouse, 1891 = *D. quadratus* Laporte, 1832, **new synonymy**.

The holotype of *D. smaragdinus* is a very small individual of *D. quadratus*, aside being slightly teneral and having the median lobe of the metasternum slightly more convex no differences can be found.

2) *D. planus* Olsoufieff, 1924 = *D. quadratus* Laporte, 1832, **new synonymy**.

The lectotype of *D. planus* has been studied and except for being a female and having the pronotal green metallic marking less extensive no other differences could be found.

3) *D. smaragdinus chevrolati* Blut, 1939 = *D. quadratus* Laporte, 1832, **new synonymy**.

The holotype female of *D. smaragdinus chevrolati* has been compared to the holotype of *D. quadratus* and only differs in the extent of the pronotal metallic marking which are absent on most of the disc. The pronotal and cephalic microsculpture are slightly more pronounced. The fine tubercles and rugulae of the pronotal lateral declivities are denser and cover slightly more surface. The pronotal punctures are fine instead of minute laterally posterior to lateral fossae. Some specimens in the material studied show intermediate forms and this variation is here considered intraspecific.

#### **40. *Dendropaemon (Sulcopaemon) similis* Blut, 1939**

(Figs. 40, 106–107, 154)

*Dendropaemon similis* Blut 1939, Arch. Naturg. (N.F.) 8: 282 (original description)

*Dendropemon simile*: Blackwelder 1944, U.S. Nat. Mus. Bull. 185: 211 (checklist)

**Type locality.** Paraguay.

**Diagnosis.** The small size combined with the three-segmented meso- and metatarsi with the second segment being subequal in length to the first segment will place the species in the *quadratus* species complex. The lateral pronotal fossae with the sharply carinate anterior edge will separate it from most other species in the group. The three-segmented meso- and metatarsi will separate it from *D. quadratus*, the rounded pronotal lateral edges and the obtuse anterior angles in dorsal view will separate it from *D. nitidicollis* and the elytral striae 1 bent laterally before reaching the apical margin will separate it from *D. fascies*.

**Description.** Male holotype (Fig. 40). **Body.** Body small, length 9.0 mm, maximum width 4.0 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface dark brown to black, glossy, with green and coppery metallic sheen; head brown along anterior edge of clypeus, with green and coppery metallic sheen on remaining surface; pronotum with green metallic sheen except for anteromedian carina, on anterior portion of disc and surface adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum dark brown to black; pygidium with green and coppery metallic sheen; legs reddish brown to dark brown. **Head.** Clypeus broadly arcuate, anterior portion slightly upturned; clypeal teeth ogival; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with transverse blunt rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with fine blunt transverse rugulae laterally, minutely punctate internally, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, slightly arcuate in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes small in dorsal view, interocular ratio 5.5. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate on disc, punctures becoming fine on lateral declivities, with a fine longitudinal sulcus on posterior two-third; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a tri-sinuous carina, carina produced into a tubercle medially; anterior angles surface with fine blunt longitudinal rugulae, slightly but distinctly sulcate along posterior edge of anterior margin; lateral fossae rounded and bordered anteriorly by a sharp carina; lateral portions unmodified; pronotal basal fossae small, more or less rounded; posterior margin ill-defined on a short distance on each side of pronotal basal fossae, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 1.0; elytral base lacking distinct margin, simply convex; elytral striae 1–4 very wide basally and tapering toward apex, very deeply impressed basally, elytral striae 5 similar to 4 on disc, stria punctures minute, stria 1 well-defined apically, connecting to marginal stria; interstriae slightly convex, minutely punctate with fine irregular depressions throughout, with some microsculpture along striae. **Thoracic sterna.** Proepisternal carina reduced, present along coxal insertion only; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge ill-defined, keel shaped. **Legs.** Profemur posterior surface slightly but distinctly convex, rather coarsely punctate and glabrous internally, posteroventral margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anteroventral edge, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle lobate; anterior surface lacking aligned row of setae internally, with few aligned and isolated setiferous punctures only, surface coarsely microsculptured between punctures; posterior surface with coarse irregular punctures externally to median carina, surface glossy between punctures, with a single interrupted setal row along lateral teeth. Mesofemur obtusely angular on anteroventral edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with a well-defined irregular sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy basally and slightly irregular apically, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with transverse microsculpture. Metatarsus 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex, with anteroventral carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally slightly convex; sternites 4–6 with 1–3 unaligned rows of setae laterally,

glabrous medially; sternite 7 slightly longitudinally concave medially, shorter than segment 6 along midline; pygidium finely punctate on disc. **Male genitalia** (Figs. 106–107). Parameres produced onto a lobe laterally; surface smooth, glossy apically.

**Measurements** (1 male). Length: 9.0 mm.

**Primary type data** (Fig. 154). Holotype male (MTD): [Paraguay/ Dr Bohls]/ [♂]; [Coll. C. Felsche/ Kauf 20, 1918] green card; [Typus] red card; [Dendropaemon/ similis Blut/ Paraguay, Dr. Bohls] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD00016771]; [HOLOTYPE/ *Dendropaemon/ similis/ Blut, 1939*] red card; [Dendropaemon/ similis/ Blut, 1939/ vid. F. Génier, 2014].

**Material examined.** Primary type only.

**Natural history.** Unknown.

**Remarks.** Female and variation unknown.

As noted by Blut (1939), this species is externally extremely similar to *D. fascies*. In the original description, Blut states that the holotype male is from San Salvador (Paraguay). However, the locality data labels on the specimen only state “Paraguay”. Two specimens of *D. fascies* studied by Blut are clearly labeled as from San Salvador and both of these specimens are from the type series of *D. fascies* studied by Blut and are identical to the lectotype. This is certainly casting doubts on the exact type locality.

In addition to characters used in the description the following differences can also separate *D. similis* from *D. fascies*: the punctures of the posterior portion of the profemur are much larger and confluent, the surface exhibit coarse microsculpture, the same is true for the meso- and metafemora. Although much more difficult to quantify and describe, the posterior portion of the pronotum is slightly more convex laterally, the posterior border is, as a result, well defined on a longer distance. Finally, the pygidial surface show distinct microsculpture and the parameres are less explanate apically in dorsal view and are slightly shorter.

### ***Dendropaemon (Titthopaemon) Génier & Arnaud, new subgenus***

**Type species:** *Dendropaemon denticollis* Felsche, 1909; monotypy.

**Description.** Size small. Habitus elongated, parallel sided; with metallic sheen on head, pronotum and elytra. Body strongly compressed dorsoventrally. Clypeal edge distinctly emarginate on external side of each clypeal tooth; clypeal teeth acutely angular. Pronotum with fine punctures on disc; anterior margin flat lateral to eyes, flat surface produced into a sharp tubercle laterally; lateral fossae rounded and simple. Elytral base lacking margin. Meso and metatarsi similar in shape, three segmented, first segment approximately two times as long as wide at apex, last segment spiniformly produced internally, with setae apically.

**Etymology.** “*Titthos*” (nipple, teat) a Greek name pertaining to the tubercle of the pronotal anterior margin which is presenting the aspect of a nipple in the species included in the subgenus, with the suffix “*paemon*” to keep the naming scheme similar to the genus. Gender masculine.

### **41. *Dendropaemon (Titthopaemon) denticollis* Felsche, 1909**

(Figs. 41, 108–109, 133, 155, 161)

*Dendropaemon denticollis* Felsche **1909**, *Deut. Ent. Zeit.* 1909: 758 (original description)

*Dendropaemon denticollis*: Gillet **1911**, *Col. Cat.* 38: 88 (catalogue)

*Dendropaemon denticollis*: Olsoufieff **1924**, *Insecta* 13: 129 (monograph)

*Dendropaemon denticollis*: Pessôa & Lane **1936**, *Rev. Biol. Hygiene* 7: 90 (identification key, comment)

*Dendropaemon denticollis denticollis*: Blut **1939**, *Arch. Naturg. (N.F.)* 8: 276 (monograph)

*Dendropaemon denticollis lividus* Blut **1939**, *Arch. Naturg. (N.F.)* 8: 276 (original description) **new synonymy**

*Dendropaemon denticollis*: Pessôa & Lane **1941**, *Arq. Zool. S. Paulo* 2: 491 (identification key, distribution)

*Dendropaemon denticolle*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon denticolle lividum*: Blackwelder **1944**, *U.S. Nat. Mus. Bull.* 185: 210 (checklist)

*Dendropaemon (D.) denticollis*: Edmonds **1972**, *Univ. Kansas Sc. Bull.* 49: 850 (comment taxonomy)

*Dendropaemon denticolle*: Vaz-de-Mello **2000**, *Hac. Proy. CYTED*: 192 (faunistic)

*Dendropaemon (D.) denticollis*: Arnaud **2002**, *Col. Monde* 28: 15 (mention)

*Dendropaemon denticollis*: Philips et al. **2004**, *Insect Syst. Evol.* 35: 51 (phylogeny)

*Dendropaemon denticolle*: Barbosa **2008**, *Comm. Scar.*: 19 (biology)

*Dendropaemon (D.) denticollis*: Vaz-de-Mello & Génier **2009**, *Col. Bull.* 63: 364 (biology)

*Dendropaemon denticollis lividus*: Hamel-Leigue et al. **2009**, *Kempffiana* 5: 49 (faunistic)

**Type locality.** Jatahy, Provinz Goyas.

**Diagnosis.** The only species in the genus with a denticle on the anterior pronotal margin adjacent to the eyes.

**Description.** Female holotype. **Body.** Body small, length 9.0 mm, maximum width 4.5 mm; body subrectangular in dorsal view; dorsum narrowly flat. **Color.** Dorsal surface brown, glossy, with green metallic sheen; head brown along anterior edge of clypeus, metallic green on remaining surface; pronotum with green metallic sheen except on small areas along anteromedian carina and adjacent to lateral fossae; elytra with uniform green metallic sheen; ventrum light to dark brown; pygidium with greenish metallic sheen; legs light to dark brown. **Head.** Clypeus broadly arcuate, anterior portion upturned; clypeal teeth acutely triangular; clypeal median emargination broadly u-shaped, clypeal edge emarginate on external side of each clypeal tooth, clypeal teeth ventral surface lacking carina, clypeal margin ill-defined, lacking sharp carina posteriorly, clypeal surface with short and blunt transverse rugulae; clypeogenal suture well-defined, bluntly carinate internally; genal surface with small and blunt irregular tubercles, lacking distinct transverse carina, simply convex; clypeofrontal carina rather low, approximately 4 times wider than high, straight in dorsal view, simply carinate, clypeofrontal carina apical edge straight in frontal view; eyes large in dorsal view, interocular ratio 2.7. **Pronotum.** Pronotum transverse in dorsal view, pronotal width/length ratio 1.4; disc of pronotum minutely punctate throughout, with a sharply defined longitudinal sulcus on posterior half; pronotal anterior margin wider and flat lateral to eyes; anterior portion with a broad sharp and nearly straight carina medially; anterior angles surface with blunt rugulae, nearly smooth along anterior margin, similar to lateral margin along posterior edge of anterior margin; lateral fossae oval, simple; lateral portions slightly explanate; pronotal basal fossae very small and rounded; posterior margin ill-defined, lacking setae. **Elytra.** Elytra approximately as long as wide in dorsal view, elytral combined width/length ratio 0.9; elytral base lacking distinct margin, simply convex; elytral striae 1–4 moderately wide, evenly impressed throughout, elytral striae 5 similar to 4 on disc, stria punctures minute, adjacent stria edge encroaching on interval, stria 1 weakly impressed apically, going straight to elytral apical margin; interstriae slightly convex, minutely punctate throughout, surface glossy. **Thoracic sterna.** Proepisternal carina absent; metasternal median lobe bluntly angularly produced anteromedially, ventral ridge ill-defined, v-shaped. **Legs.** Profemur posterior surface convex, glabrous and punctate internally, posteroventral margin rather thick, evenly developed, internal edge rather wide, with a contiguous row of setae along anteroventral edge, remaining surface smooth. Protibia with four teeth on lateral edge; internal basal angle bluntly lobate; anterior surface with long aligned row of setae internally, surface glossy or feebly microsculptured between punctures; posterior surface with some ill-defined irregular punctures externally to median carina, surface finely and irregularly microsculptured between punctures, with a single interrupted setal row along lateral teeth. Mesofemur unmodified on anteroventral edge apically. Mesotibia rather short, gradually widening toward apex in anterior view; anteroapical edge slightly sinuate in anterior view, anteroapical row of setae complete; apicoanterior edge circularly indented internally; external edge more or less rounded, with several large elongate setiferous punctures. Mesotarsus similar in shape to metatarsus, 3-segmented, first segment moderately elongate, approximately two times as long as wide at apex. Metafemur internal edge nearly straight and lateral edge arcuate, lacking distinct depressed area anteroventrally before apex, apicoposterior edge unmodified, anterior surface with a well-defined sulcus on apical half. Metatibia moderately slender, slightly widening toward apex in anterior view, anterior surface with distinct row of setae, surface glossy, metatibial posterior surface flat between longitudinal row of setae and lateral edge, with ill-defined microsculpture. Metatarsus 3-segmented (Fig. 133), first segment short, approximately as long as wide at apex, with anteroventral carina well defined and almost reaching apical edge. **Abdominal sternites.** Sternites 3–6 longitudinally flat; sternites 4–6 with 1–3 unaligned rows of setae laterally, glabrous medially; sternite 7 approximately longitudinally flat medially, subequal in length to segment 6 along midline; pygidium finely punctate on disc.

**Measurements** (65 males, 106 females). Length: male 7.0–10.5 (8.7±0.7), female 7.5–10.5 (9.0±0.7) mm.

**Primary type data.**

*Dendropaemon denticollis* Felsche (Fig. 155). Holotype female (MTD): [Jatahy/ Prov.Goyas]; [Coll. C. Felsche/ Kauf 20, 1918] green card; [Typus] red card; [Staatl. Museum für/ Tierkunde Dresden]; denticollis/ m./ Paraguay] handwritten; [WORLD/ SCARAB./ DATABASE/ WSD 00016835]; [HOLOTYPE/ *Dendrop[a]emon/ denticollis/ Felsche, 1909*] red card; [*Dendropaemon* ♀/ denticollis/ Felsche, 1909/ vid. Génier & Arnaud, 2009].



***Dendropaemon denticollis lividus* Blut.** Holotype male (ZMHB): [BOLIVIA/ S Cruz de la Sierra] partly handwritten; [♂]; [Typus] red card; [Dendropaemon/ dentic. lividus/ Boliv. ♂ Type.] handwritten, black border; [HOLOTYPUS/ Dendropaemon/ denticollis lividus Blut, 1939/ labelled by MNHUB 2009] red card; [WORLD/ SCARAB./ DATABASE/ WSD00016585]; [*Dendropaemon* ♂/ *denticollis*/ Felsche. 1909/ deét. Génier & Arnaud, 2009]

**Material examined. BOLIVIA:** SANTA CRUZ, Provincia Andrés Ibáñez, Santa Cruz de la Sierra, (17°48'S, 63°10'W), [no date], coll. [anonymous]—1 male (holotype) (ZMHB); Río Ichilo, elev. 350 m, X.1926, coll. F. Steinbach—1 female (CMNC); SANTA CRUZ, Yoay, (20°17'S, 63°6'W), xii.1932, coll. [anonymous]—1 female (CAS); Provincia Andrés Ibáñez, Santa Cruz de la Sierra, (17°48'S, 63°10'W), xi.1910, coll. J. Steinbach—1 male (WDEC); Provincia Chiquitos, Santiago, (18°20'17"S, 59°35'37"W), xi.1959, coll. [anonymous]—1 female (CMNC); Provincia Sara, [unspecified locality], [no date], coll. Steinbach—1 male (CMNC); **BRAZIL:** same locality, [no date], coll. [anonymous]—1 female, 2 males (IRSNB, MNHN); DISTRITO FEDERAL, Brasília, elev. 1100 m (15°47'S, 47°55'W), iv.2000, coll. N. Dégallier—1 female (CMNC); same locality, xii.2000, coll. N. Dégallier—1 female (CMNC); same locality, xi.1999, coll. N. Dégallier—1 male (CMNC); same locality, iv.1999, coll. N. Dégallier—1 male (CMNC); same locality, ix.1999, coll. N. Dégallier—1 male (CMNC); same locality, iii.2000, coll. N. Dégallier—2 males (CMNC); GOIÁS, Aragarças, (15°53'50"S, 52°13'48"W), 30.iii.1953, coll. M. Alvarenga—1 male (GHCM); Aruanã, Rio Araguaya, (14°55'27"S, 51°4'37"W), v.1967, coll. Dirings—1 female (MZSP); Bom Jardim de Goiás, (16°12'10"S, 52°10'32"W), ii.1998, coll. Vaz-de-Mello—1 female (CEMT); Campinas, (14°18'52"S, 49°9'30"W), ii.1938, coll. Dr. Nick—1 female (CMNC); same locality, i.1938, coll. Dr. Nick—1 female (CMNC); Goiânia, (16°41'S, 49°15'W), xii.1992, coll. Crossare—1 female (CPFA); same locality, 20.ii.1986, coll. P.B. Silva—1 female (CEMT); Goiatuba, (18°0'40"S, 49°22'10"W), i.1947, coll. Guérin—1 female (CMNC); same locality, ii.1947, coll. J. Guérin—1 female (CMNC); Jataí, (17°53'S, 51°43'W), [no date], coll. [anonymous]—6 females, 2 males (BMNH, IRSNB, MTD, ZMHB); Leopoldo de Bulhões, (16°36'52"S, 48°44'26"W), xi.1937, coll. Dr. Nick—1 female (BDGC); Mineiros, (17°34'43"S, 52°32'32"W), [no date], coll. [anonymous]—1 female (MNHN); Niquelândia, (14°27'S, 48°27'W), x.1994, coll. [anonymous]—1 female, 1 male (WDEC); Rio Verde, (17°47'50"S, 50°54'0"W), xii.1945, coll. Zellibor—1 female (CMNC); Trindade, (16°38'52"S, 49°29'53"W), [no date], coll. Ch. Pujol—1 female, 1 male (MNHN); [unspecified locality], [no date], coll. Baer—1 female (MNHN); MARANHÃO, Posto Avançado do Mel, Parque Estadual Mirador, Mirador, (6°43'50"S, 44°58'59"W), 30–31.v.2011, coll. F. Limeira-de-Oliveira, A.A. Santos & T.T.A. Silva—1 male (CEMT); MATO GROSSO, Bela Vista, (16°2'S, 56°53'W), 23.iv.1957, coll. J. Toledo—1 female (MNRJ); Cuiabá, (15°35'45"S, 56°5'49"W), [no date], coll. [anonymous]—2 females (ZMHB); Diamantino, Alto Rio Arinos, x.1999, coll. E. Furtado—2 females, 2 males (CEMT); E. Furtado casa, Vale de Solidão, Diamantino, (14°22'14"S, 56°7'59"W), 21.x.2008, coll. E. Furtado—1 female (CEMT); same locality, 24.x.2008, coll. E. Furtado—5 females, 4 males (CEMT); Fazenda Mutuca, Cuabá, (15°18'52.2"S, 55°58'13.08"W), 20.xii.2008, coll. [anonymous]—1 female (CEMT); Fazenda Santhidi, Distrito da Guia, Município de Cuiabá, 4.x.2008, coll. L.R. Silva—1 female (CEMT); Fazenda Santidi, Cuiabá, elev. 250 m (15°23'6"S, 56°6'42"W), 28.ix.2008, coll. L.R. Silva—1 female, 1 male (CEMT); Ferreiros, i.1947, coll. [anonymous]—1 female (GHCM); Poconé, (16°15'25"S, 56°37'29"W), 21.x.1953, coll. [anonymous]—1 female (CPFA); Rosário Oeste, (14°50'S, 56°25'W), i.1972, coll. Dirings—1 female (CMNC); Sul de Mato Grosso, ii.1957, coll. Salvarenga—1 female (CMNC); Vale da Solidão (area 2), Município Diamantino, (14°21'50"S, 56°7'23"W), ii.2001, coll. E. Furtado—9 females, 2 males (CEMT); same locality, iii.2001, coll. E. Furtado—5 females, 5 males (CEMT); Vale da Solidão, Município Diamantino, (14°21'52"S, 56°7'23"W), 27.ii.2009, coll. D.C.T. Oliveira—1 female (CEMT); MATO GROSSO DO SUL, Campo Grande, (20°26'30"S, 54°39'0"W), x.1947, coll. A. Maller—1 male (AMNH); same locality, iii.1986–iii.1987, coll. Bianchin et al.—1 male (CEMT); Corghinho Quinta do Sol, (19°49'57"S, 54°49'45"W), ii.2011, coll. L.O. Bavutti—3 males (CEMT); Corumbá, (19°0'35"S, 57°39'17"W), i.1946, coll. J. Guérin—1 male (CMNC); Fazenda Califórnia, Bodoquena [1], (20°41'46"S, 56°52'55"W), iii.2011, coll. L.O. Bavutti—1 male (CEMT); Fazenda Califórnia, Bodoquena [2], (20°41'4"S, 56°51'36"W), iii.2011, coll. L.O. Bavutti—1 male (CEMT); Fazenda Califórnia, Bodoquena [3], (20°41'5"S, 56°51'33"W), iii.2011, coll. L.O. Bavutti—1 female (CEMT); Horto Nova Palmito, International Paper, Três Lagoas, 5.iii.1993, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 5.iii.1993, coll. C.A.H. Flechtmann—1 male (MEFEIS); Horto Rio Verde, Três Lagoas Agroflorestal, Três Lagoas, (20°55'21"S, 52°8'21"W), 26.x.1993, coll. C. Flechtmann—1 female (CEMT); same locality, 9.xi.1993, coll. C. Flechtmann—1 female (CEMT); Salobra, (12°14'S, 57°8'W), x.1941, coll. J. Guérin—1

male (GHCM); Três Lagoas, (20°45'35"S, 51°41'42"W), xii.1982, coll. K. Hudepohl—2 females (CPFA); UNESP Farm [=Fazenda Experimental da Universidade Estadual Paulista, campus de Ilha Solteira], Selvíria, (20°22'55.41"S, 51°24'39.3"W), 23.x.1989, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 12.ix.1991, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 10.x.1991, coll. C.A.H. Flechtmann—8 females, 2 males (MEFEIS); same locality, 17.x.1991, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 22.x.1991, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 21.xi.1991, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 9.v.1992, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 10.x.1992, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 23.x.1992, coll. C.A.H. Flechtmann—2 females, 1 male (MEFEIS); same locality, 3.i.1993, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 30.v.1993, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 21.iii.1996, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 18.iv.1996, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 17.ix.1997, coll. C.A.H. Flechtmann—1 female (CEMT); same locality, 7.x.1999, coll. C.A.H. Flechtmann—1 female (MEFEIS); same locality, 6.iv.2000, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 7.ix.2000, coll. C.A.H. Flechtmann—1 female (CEMT); same locality, 21.ix.2000, coll. C.A.H. Flechtmann—1 female (CEMT); same locality, 23.xi.2000, coll. C.A.H. Flechtmann—1 female (CEMT); same locality, 29.ix.2005, coll. V.G. Tabet—1 male (MEFEIS); same locality, 9.i.2007, coll. F.W. Mesquita—1 male (MEFEIS); same locality, 16.ix.2009, coll. C.A.H. Flechtmann—1 male (MEFEIS); same locality, 4.ii.2010, coll. C.A.H. Flechtmann—1 female (MEFEIS); Usina Santa Helena, Nova Andradina, (21°59'32"S, 53°26'28"W), 18.x.2012, coll. G. Coutinho—2 males (CEMT); MINAS GERAIS, Araxá, (19°35'36"S, 46°56'27"W), xi, coll. [anonymous]—1 female (MNRJ); same locality, [no date], coll. [anonymous]—1 female (MTD); Barro Preto, Belo Horizonte, (19°55'18"S, 43°57'7"W), [no date], coll. Ch. Pujol—1 female (MNHN); Conceição dos Ouros, (22°25'S, 45°48'W), ii.2002, coll. [anonymous]—1 female (COBF); Fazenda do Riacho Fundo, Campos de Diamantina, xii.1902, coll. E. Gounelle—1 female (MNHN); Fazenda Pontinha, Cordisburgo, elev. 700 m (19°8'53"S, 44°12'1"W), i.1994, coll. F.Z. Vaz de Mello—1 female (MZLU); same locality, 6.i.2001, coll. F. Vaz de Mello (2001-01)—1 male (CMNC); Irara, [no date], coll. Dr. Bach—2 males (ZMHB); Lavras, (21°14'45"S, 44°59'59"W), 11.xi.2004, coll. R.C. Avelar—1 female (CEMT); Uberaba, (19°45'S, 47°56'W), [no date], coll. [anonymous]—2 females, 2 males (CPFA, IRSNB); SÃO PAULO, Araras, (22°21'28"S, 47°23'6"W), 15.iv.1981, coll. J. Borges—1 male (CMNC); Batatais, (20°53'30"S, 47°35'0"W), i.1948, coll. [anonymous]—1 female, 1 male (BMNH); Fazenda Contribuição, Matão, (21°35'S, 48°22'W), 22.xi.1973, coll. [anonymous]—3 females (WDEC); Fazenda da Pedra, Rio Tamandúa, Ribeirão Preto, 5–8.xii.1953, coll. Travassos & Zago—1 male (CMNC); Pirassununga, (21°59'45"S, 47°25'37"W), x.1970, coll. A. Bello—1 female (CEMT); same locality, 14.x.1948, coll. Schubart—1 female (WDEC); same locality, 23.x.1970, coll. Bello—1 male (CEMT); Ribeirão Preto, (21°10'S, 47°49'W), ix.1954, coll. Duret—1 female (CMNC); same locality, xi.1954, coll. Barretto—1 female (MZSP); [**NO DATA**]: -, coll. [anonymous]—1 male (MNHN); **PARAGUAY**: AMAMBAY, Parque Nacional Cerro Corá, (22°37'41"S, 56°12'28"W), 12–16.x.1981, coll. J. Kochalka—1 male (FSCA); same locality, 1–2.vi.2006, coll. B. Garcete—1 female (WDEC); ASUNCIÓN, Trinidad, x.1948, coll. Martínez—1 female (CMNC); CONCEPCIÓN, Campo Zanja Morotí, (22°31'48"S, 57°13'48"W), xii.2005, coll. C. Aguilar—1 female (WDEC); same locality, 20.x.2006, coll. C. Aguilar—1 male (WDEC).

**Natural history.** A series of recently collected specimens using light trap set in cerrado, *Eucalyptus grandis* stand, mata ciliar, *Brachiaria decumbens* pasture and *Brachiaria decumbens* pasture—Atlantic forest edge. Two specimens found in Guzera bovine dropping and a single specimen collected in a pitfall trap baited with bovine dung.

**Remarks.** Females are extremely similar to males externally, only differing by the anterior pronotal carina being slightly more sinuous; the carina is less sinuous and subtuberculate medially in males. Parameres (Figs. 108–109) simply rounded apically in dorsal view, rather dorsoventrally compressed and with few fine raspy granules apically. Variation, as usual, occurs in the extent of the metallic markings on the head and pronotum as well as the color of the markings. Although most individuals are green, some are blue to dark violet-blue and some others are light green with coppery tinge in some areas, especially on pronotum.

At higher magnification, the denticle of the pronotal margin show a porous surface medially and we suggest here that it is most likely the opening of an exocrine gland. The presence of this structure seemingly provide significant advantage as *D. denticollis* is the most frequently collected species in the genus, suggesting that the species is represented by a larger population and it is also widely distributed.

**Nomenclature and taxonomy.** *Dendropaemon denticollis lividus* Blut, 1939 = *Dendropaemon denticollis* Felsche, 1909, **new synonymy.** The type of *D. denticollis lividus* Blut, 1939, from Bolivia, differs from the nominal species by the more deeply punctate pygidium and the dominant bluish tinge instead of greenish. After closer examination, other specimens from Brazil also show various degree of impression in pygidial punctures. We consider this character as being within the specific variation of the species and could not find any pattern in the distribution that could support maintaining this taxon as a separate entity.

## Identification key to species of *Dendropaemon*

1. Anterior pronotal margin with a small tubercle adjacent to the eyes. . . . . (subg. *Titthopaemon*) *D. denticollis* 2
- 1'. Anterior pronotal margin lacking small tubercle adjacent to the eyes. . . . . 3
- 2 (1'). Meso- and metatarsi four segmented (subg. *Eurypodea*) . . . . . 3
- 2'. Meso- and metatarsi with fewer segments. . . . . 4
- 3 (2). Parameres pointed apically in lateral view, distinctly concave apically in dorsal view. Bolivia, Brazil, Peru? . . . *D. convexus*
- 3'. Parameres rounded apically in lateral view, distinctly convex in dorsal view. French Guiana, Venezuela. . . . . *D. fredericki*
- 4 (2'). Meso- and metatarsi dissimilar in shape; body shape globose, lacking metallic sheen (subg. *Paradendropaemon*) . . . . . 5
- 4'. Meso- and metatarsi similar in shape; body shape more or less flatten dorsoventrally, usually with some metallic sheen . . . . . 6
- 5 (4). First metatarsomere cylindrical; metatibial anterior surface completely covered with irregular sculpturing and punctures . . . . . *D. vazdemelloi*
- 5'. First metatarsomere longitudinally compressed; metatibial anterior surface glossy between the fine irregular punctures . . . . . *D. ganglbaueri*
- 6 (4'). Mesotibia enlarged and depressed medially in anterior view; anterior edge notched (subg. *Streblropaemon*) . . . . . *D. fractipes*
- 6'. Mesotibia gradually widening toward apex or more or less parallel sided; anterior edge unmodified. . . . . 7
- 7 (6'). Meso- and metatarsi three segmented . . . . . 8
- 7'. Meso- and metatarsi two segmented . . . . . 32
- 8 (7). Color entirely black, surface glossy and lacking any trace of metallic sheen . . . . . (subg. *Nigropaemon*) *D. nigritulus*
- 8'. A least with a trace of metallic sheen on pronotum and/or elytra . . . . . 9
- 9 (8'). Metatarsal first segment subcylindrical, about 4 times as long as second; pronotum entirely black (subg. *Enicotarsus*) . . . . . *D. viridipennis*
- 9'. Metatarsal first segment flat, less than 3 times as long as second; pronotum with metallic sheen . . . . . 10
- 10 (9'). Pronotal base with margin widely interrupted on each side of midline, margin never appearing crenulated or interrupted with coarse setose punctures . . . . . 11
- 10'. Pronotal base usually completely marginate, if margin is more or less interrupted on each side of midline some coarse setose punctures are present . . . . . 18
- 11 (10). Pronotal lateral fossae simple, rounded, lacking sharp edge anteriorly; surface anterior to fossae simply punctate, punctures never confluent or forming rugulae (subg. *Glaphyropaemon* partim). . . . . 12
- 11'. Pronotal lateral fossae modified, asymmetrical, either with sharp edge anteriorly and/or with rugulae or confluent punctures on surface anterior to fossae . . . . . 13
- 12 (11). Pronotal anterior margin enlarged and flat lateral to the eyes . . . . . *D. angustipennis*
- 12'. Pronotal anterior margin similar in width and convex lateral to the eyes . . . . . *D. inemarginatus*
- 13 (11'). Pronotal anterior margin similar in width and convex lateral to the eyes; usually with bluish to dark green metallic sheen (subg. *Glaphyropaemon* partim) . . . . . *D. bahianus*
- 13'. Pronotal anterior margin enlarged and flat lateral to the eyes; usually with greenish metallic sheen . . . . . (subg. *Sulcropaemon* partim) 14
- 14 (13'). Elytral striae 1–5 very wide, deep and parallel sided from base to apical declivity . . . . . *D. latistriatus*
- 14'. Elytral striae 1–5 wide and deep basally, distinctly narrowed from base to apical declivity . . . . . 15
- 15 (14'). Pronotal lateral edges distinctly tapering on anterior half in dorsal view . . . . . 16
- 15'. Pronotal lateral edges more or less parallel sided on anterior half in dorsal view. . . . . 17
- 16 (15). Pronotal basal fossae small, rounded and well separated . . . . . *D. haroldi*
- 16'. Pronotal basal fossae large, triangular and closely set. . . . . *D. similis*
- 17 (15'). Pronotal anterior angles rounded in dorsal view; larger average size (7.0–10.5 mm). . . . . *D. fascies*
- 17'. Pronotal anterior angles subangular in dorsal view; smaller average size (6.0–8.5 mm) . . . . . *D. nitidicollis*
- 18 (10'). Clypeus acutely notched on each side of clypeal tooth . . . . . (subg. *Coprophanaeoides*) 19
- 18'. Clypeus unmodified or obtusely notched on each side of clypeal tooth . . . . . 28
- 19 (18). Dorsal surface of head and pronotum with numerous conspicuous long setae<sup>1</sup> . . . . . 20
- 19'. Dorsal surface of head and pronotum glabrous (with a few conspicuous setae on pronotal anterior angles in *D. pauliani*, but differ from all other species by the bluish metallic sheen) . . . . . 25

1. Setae might be absent in abraded specimens.

20 (19).	Eight elytral interval completely covered with long setae.	<i>D. pilosissimus</i>
20'.	Eight elytral interval with at most few scattered setae	21
21 (20').	Elytral base lacking margin	22
21'.	Elytral base marginate	23
22 (21).	Metasternal ridge v-shaped and well defined	<i>D. compressipennis</i>
22'.	Metasternal ridge obsolete.	<i>D. hirticollis</i>
23 (21').	Pronotal disc with few setiferous punctures usually set in two patches on each side of midline, in some specimens setiferous punctures completely lacking on disc	<i>D. carinifer</i>
23'.	Pronotal disc with numerous large and coarse setiferous punctures	24
24 (23').	Clypeal edge broadly arcuate in dorsal view	<i>D. cribrosus</i>
24'.	Clypeal edge straight in dorsal view between clypeal teeth and clypeogenal suture	<i>D. furtadoi</i>
25 (19').	Lateral pronotal fossae sharply carinate laterally	<i>D. renatii</i>
25'.	Lateral pronotal carinae bluntly carinate laterally	26
26 (25').	Elytral striae lacking fine sharp edge on each side	<i>D. inflatus</i>
26'.	Elytral striae normally developed with fine sharp edge on each side	27
27 (26').	Lateral edges of pronotum tapering anteriorly on anterior half.	<i>D. bluti</i>
27'.	Lateral edges of pronotum parallel sided on anterior half.	<i>D. pauliani</i>
28 (18').	Metatibial apical edge strongly lobate beyond tibial insertion, internal surface of lobate portion with a distinct small tubercle (subg. <i>Onthoecus</i> partim).	29
28'.	Metatibial apical edge feebly to moderately lobate beyond tibial insertion, internal surface of lobate portion flat	30
29 (28).	Clypeus obtusely notched on each side of clypeal teeth; teeth larger and forming a more or less right triangle.	<i>D. amyntas</i>
29'.	Clypeus unmodified or at most feebly sinuous on each side of clypeal teeth; teeth smaller and forming a more or less isosceles triangle	<i>D. attalus</i>
30 (28').	Abdominal segments 3–8 with extremely long and curly fulvous pubescence; metatibia slender (subg. <i>Rutilopaemon</i> )	31
30'.	Abdominal segments 3–8 with long and erect dark reddish pubescence laterally; metatibia robust (subg. <i>Onthoecus</i> partim).	31
31 (30').	Anteromedian pronotal carina subangulate medially in female and bordering anteriorly a distinct concavity in the male	<i>D. lydiae</i>
31'.	Anteromedian pronotal carina broadly arcuate medially in female and lacking a distinct concavity posteriorly to carina in both sexes.	<i>D. morettoii</i>
32 (7').	Metatarsal first segment 2 times as long as second; clypeus obtusely notched on each side of clypeal teeth	(subg. <i>Sulcopaemon</i> partim) <i>D. quadratus</i>
32'.	Metatarsal first segment at least 3 times as long as second; clypeus unmodified on each side of clypeal teeth	(subg. <i>Dendropaemon</i> ) 33
33 (32').	With distinct metallic sheen on pronotum and elytra.	34
33'.	Body entirely glossy black.	35
34 (33).	Median lobe of metasternum bluntly angularly produced anteromedially in lateral view	<i>D. viridis</i>
34.	Median lobe of metasternum acutely angularly produced anteromedially in lateral view	<i>D. amazonicus</i>
35 (33').	Meso and metafemora approximately parallel sided; size large (20 mm).	<i>D. piceus</i>
35'.	Meso and metafemora distinctly enlarged toward apex.	36
36 (35').	Metafemur short, approximately twice as long as wide	37
36'.	Metafemur longer and slender, more than twice as long as wide	39
37 (36).	Species known from Peru	<i>D. larseni</i>
37'.	Species known from Guyana shield and eastern amazon	38
38 (37').	Larger average size; body shape more robust (12.5–14.0 mm).	<i>D. telephus</i>
38'.	Shorter average size; body shape more slender (7.5–11.5 mm)	<i>D. angustulus</i>
39 (36').	Species known from Cerrado and Atlantic forest in Brazil.	<i>D. flechtmanni</i>
39'.	Species known from French Guiana	40
40 (39').	Profemoral posterior surface convex; clypeal edge arcuate	<i>D. ater</i>
40'.	Profemoral posterior surface nearly flat; clypeal edge rounded	<i>D. aenigmaticus</i>

### Chave de identificação para as espécies de *Dendropaemon*

1.	Margem anterior do pronoto com um pequeno tubérculo adjacente a cada olho (subg. <i>Titthopaemon</i> ).	<i>D. denticollis</i>
1'.	Margem anterior do pronoto sem tubérculo adjacente a cada olho	2
2 (1').	Tarsos médios e posteriores com quatro tarsômeros (subg. <i>Eurypodea</i> ).	3
2'.	Tarsos médios e posteriores com menos de quatro tarsômeros	4
3 (2).	Parâmeros pontudos apicalmente em vista lateral, distintamente côncavos apicalmente em vista dorsal. Bolívia, Brasil, Peru?	<i>D. convexus</i>
3'.	Parâmeros arredondados apicalmente em vista lateral, distintamente convexos em vista dorsal. Guiana Francesa, Venezuela	<i>D. fredericki</i>



4 (2').	Tarsos médios e posteriores com formato diferente; corpo globoso, sem brilho metálico (subg. <i>Paradendropaemon</i> ). . . . .	5
4'.	Tarsos médios e posteriores similares em forma; corpo mais ou menos achatado dorsoventralmente, geralmente com brilho metálico . . . . .	6
5 (4).	Primeiro metatarsômero cilíndrico; superfície anterior da metatíbia completamente coberta de escultura irregular e pontuações . . . . .	<i>D. vazdemelloi</i>
5'.	Primeiro metatarsômero longitudinalmente comprimido; superfície anterior da metatíbia lisa entre finas pontuações irregulares . . . . .	<i>D. ganglbaueri</i>
6 (4').	Tíbia média bruscamente alargada e deprimida medialmente em vista anterior; borda anterior emarginada . . . . .	(subg. <i>Streblopaemon</i> ) <i>D. fractipes</i>
6'.	Tíbia média gradualmente alargada para o ápice ou com lados mais ou menos paralelos; borda anterior não modificada . . . . .	7
7 (6').	Tarsos médios e posteriores com três tarsômeros . . . . .	8
7'.	Tarsos médios e posteriores com dois tarsômeros . . . . .	32
8 (7).	Cor completamente negra, superfície brilhante e sem nenhum brilho metálico (subg. <i>Nigropaemon</i> ). . . . .	<i>D. nigrutilus</i>
8'.	Pelo menos algum brilho metálico no pronoto e/ou élitros . . . . .	9
9 (8').	Primeiro metatarsômero subcilíndrico, cerca de quatro vezes mais longo que o segundo; pronoto inteiramente negro . . . . .	(subg. <i>Enicotarsus</i> ) <i>D. viridipennis</i>
9'.	Primeiro metatarsômero achatado, menos de três vezes mais longo que o segundo; pronoto com brilho metálico . . . . .	10
10 (9').	Base do pronoto com marginação largamente interrompida a cada lado do meio, marginação nunca parecendo crenulada ou interrompida por pontos setosos . . . . .	11
10'.	Base do pronoto geralmente completamente marginada, se marginação mais ou menos interrompida a cada lado então alguns pontos setosos estão presentes . . . . .	18
11 (10).	Fossas pronotais laterais simples, arredondadas, sem borda afiada anteriormente; superfície anterior às fossas simplesmente pontuada, pontuações nunca confluentes ou formando rúgulas (subg. <i>Glaphyropaemon</i> partim) . . . . .	12
11'.	Fossas pronotais laterais modificadas, assimétricas, ou com borda afiada anterior ou rúgulas ou pontuações confluentes na superfície anterior às fossas . . . . .	13
12 (11).	Margem anterior do pronoto alargada e achatada lateralmente aos olhos . . . . .	<i>D. angustipennis</i>
12'.	Margem anterior do pronoto regular quanto a largura e convexidade, lateralmente aos olhos . . . . .	<i>D. inemarginatus</i>
13 (11').	Margem anterior do pronoto regular quanto a largura e convexidade, lateralmente aos olhos; geralmente com brilho metálico verde escuro ou azulado (subg. <i>Glaphyropaemon</i> partim) . . . . .	<i>D. bahianus</i>
13'.	Margem anterior do pronoto alargada e achatada lateralmente aos olhos; geralmente com brilho verde metálico . . . . .	(subg. <i>Sulcropaemon</i> partim) 14
14 (13').	Estrias elitais 1–5 muito largas, profundas e com lados paralelos da base até a declividade apical . . . . .	<i>D. latistriatus</i>
14'.	Estrias elitais 1–5 largas e profundas basalmente, distintamente estreitadas da base para a declividade apical . . . . .	15
15 (14').	Bordos laterais do pronoto distintamente convergentes na metade anterior em vista dorsal . . . . .	16
15'.	Bordos laterais do pronoto mais ou menos paralelos na metade anterior em vista dorsal. . . . .	17
16 (15).	Fossas pronotais basais pequenas, redondas e bem separadas . . . . .	<i>D. haroldi</i>
16'.	Fossas pronotais basais grandes, triangulares e aproximadas . . . . .	<i>D. similis</i>
17 (15').	Ângulos anteriores do pronoto arredondados em vista dorsal; tamanho maior (7.0–10.5 mm) . . . . .	<i>D. fascies</i>
17'.	Ângulos anteriores do pronoto subangulares em vista dorsal; tamanho menor (6.0–8.5 mm) . . . . .	<i>D. nitidicollis</i>
18 (10').	Clípeo agudamente emarginado a cada lado dos dentes clipeais . . . . .	(subg. <i>Coprophanaeoides</i> ) 19
18'.	Clípeo não modificado ou obtusamente emarginado a cada lado dos dentes clipeais. . . . .	28
19 (18).	Superfície dorsal da cabeça e pronoto com numerosas setas <sup>1</sup> longas e conspícuas . . . . .	20
19'.	Superfície dorsal da cabeça e pronoto glabra (com poucas setas conspícuas nos ângulos anteriores do pronoto em <i>D. pauliani</i> , que se diferencia de todas as outras espécies pelo brilho azul metálico) . . . . .	25
20 (19).	Oitava interestria elitral completamente coberta de longas setas . . . . .	<i>D. pilosissimus</i>
20'.	Oitava interestria elitral com no máximo poucas setas esparsas . . . . .	21
21 (20').	Base elitral sem marginação . . . . .	22
21'.	Base elitral marginada . . . . .	23
22 (21).	Quilha metasternal em forma de V e bem definida . . . . .	<i>D. compressipennis</i>
22'.	Quilha metasternal obsoleta. . . . .	<i>D. hirticollis</i>
23 (21').	Disco pronotal com poucos pontos setíferos geralmente arranjados em duas regiões a cada lado da linha média, em alguns espécimes pontos setíferos totalmente ausentes no disco . . . . .	<i>D. carinifer</i>
23'.	Disco pronotal com pontos setíferos numerosos e densos. . . . .	24
24 (23').	Borda clipeal largamente arqueada em vista dorsal . . . . .	<i>D. cribrosus</i>
24'.	Borda clipeal reta em vista dorsal, entre os dentes clipeais e a sutura clipeo-genal . . . . .	<i>D. furtadoi</i>
25 (19').	Fossas laterais pronotais nitidamente carenadas lateralmente . . . . .	<i>D. renatii</i>
25'.	Fossas laterais pronotais fracamente carenadas lateralmente . . . . .	26
26 (25').	Estrias elitais sem borda afiada a cada lado . . . . .	<i>D. inflatus</i>
26'.	Estrias elitais com fina borda afiada a cada lado . . . . .	27
27 (26').	Bordas laterais do pronoto convergente anteriormente na metade anterior. . . . .	<i>D. bluti</i>
27'.	Bordas laterais do pronoto paralelas na metade anterior . . . . .	<i>D. pauliani</i>

1. Podem estar ausentes em espécimes desgastados

28 (18').	Borda apical da metatíbia lobada além da inserção tibial, superfície interna da porção lobada com um pequeno tubérculo distinto (subg. <i>Onthoecus</i> partim) . . . . .	29
28'.	Borda apical da metatíbia pouco a moderadamente lobada além da inserção tibial, superfície interna da porção lobada achatada . . . . .	30
29 (28).	Clípeo obtusamente emarginado a cada lado dos dentes clipeais; dentes maiores e em forma de triângulo retângulo . . . . .	<i>D. amyntas</i>
29'.	Clípeo não modificado ou no máximo sinuoso a cada lado dos dentes clipeais; dentes menores e em forma de triângulo isósceles . . . . .	<i>D. attalus</i>
30 (28').	Segmentos abdominais 3–8 com pubescência longa e fulva; metatíbia estreita (subg. <i>Rutilopaemon</i> ) . . . . .	<i>D. refulgens</i>
30'.	Segmentos abdominais 3–8 com pubescência vermelha escura longa e ereta; metatíbia rubusta (subg. <i>Onthoecus</i> partim) . . . . .	31
31 (30').	Carena pronotal anteromediana subangulada medialmente na fêmea e bordeando uma concavidade distinta no macho . . . . .	<i>D. lydiae</i>
31'.	Carena pronotal anteromediana largamente arqueada medialmente na fêmea e sem concavidade posterior em ambos os sexos . . . . .	<i>D. moretto</i>
32 (7').	Primeiro metatarsômero duas vezes mais longo que o segundo; clipeo obtusamente emarginado a cada lado dos dentes clipeais (subg. <i>Sulcopaemon</i> partim) . . . . .	<i>D. quadratus</i>
32'.	Primeiro metatarsômero pelo menos três vezes mais longo que o segundo; clipeo não modificado a cada lado dos dentes clipeais (subg. <i>Dendropaemon</i> ) . . . . .	33
33 (32').	Com brilho metálico distinto no pronoto e élitros . . . . .	34
33'.	Corpo inteiramente negro brilhante . . . . .	35
34 (33).	Lobo mediano do metasterno com projeção angular anterior, em vista lateral, arredondada . . . . .	<i>D. viridis</i>
34.	Lobo mediano do metasterno com projeção angular anterior, em vista lateral, aguda . . . . .	<i>D. amazonicus</i>
35 (33').	Meso- e metafêmures com lados aproximadamente paralelos; tamanho grande (20 mm) . . . . .	<i>D. piceus</i>
35'.	Meso- e metafêmures distintamente alargados para o ápice . . . . .	36
36 (35').	Metafêmur curto, aproximadamente duas vezes mais longo que largo . . . . .	37
36'.	Metafêmur mais longo e estreito, mais de duas vezes mais longo que largo . . . . .	39
37 (36).	Espécie conhecida do Peru . . . . .	<i>D. larseni</i>
37'.	Espécie conhecida do Escudo das Guianas e Amazônia Oriental . . . . .	38
38 (37').	Tamanho maior; corpo de formato mais robusto (12.5–14.0 mm) . . . . .	<i>D. telephus</i>
38'.	Tamanho menor, corpo mais delicado (7.5–11.5 mm) . . . . .	<i>D. angustulus</i>
39 (36').	Espécie conhecida do Cerrado e da Mata Atlântica do Brasil . . . . .	<i>D. flechtmanni</i>
39'.	Espécies conhecidas da Guiana Francesa . . . . .	40
40 (39').	Superfície posterior do profêmur convexa; borda clipeal arqueada . . . . .	<i>D. ater</i>
40'.	Superfície posterior do profêmur quase achatada, borda clipeal arredondada . . . . .	<i>D. aenigmaticus</i>

## CHECKLIST AND DISTRIBUTION

### *Dendropaemon* Perty, 1830

*Tetramereia* Klages, 1907; **new synonymy**

*Boucomontius* Olsoufieff, 1924; synonymy: Janssens, 1940

### *Dendropaemon* (*Coprophanaeoides*) Edmonds, 1972

1. *Dendropaemon* (*Coprophanaeoides*) *bluti* Génier & Arnaud; **new species**

Distribution (Fig. 156): Brazil (MT)

2. *Dendropaemon* (*Coprophanaeoides*) *carinifer* Génier & Arnaud; **new species**

Distribution (Fig. 156): Brazil (BA, CE, MA)

3. *Dendropaemon* (*Coprophanaeoides*) *compressipennis* Génier & Arnaud; **new species**

Distribution (Fig. 156): Brazil (GO, MS)

4. *Dendropaemon* (*Coprophanaeoides*) *cribrosus* Génier & Arnaud; **new species**

Distribution (Fig. 156): Brazil (CE)

5. *Dendropaemon* (*Coprophanaeoides*) *furtadoi* Génier & Arnaud; **new species**

Distribution (Fig. 156): Brazil (MT)

6. *Dendropaemon* (*Coprophanaeoides*) *hirticollis* Olsoufieff, 1924

*Dendropaemon monte* Pessôa & Lane, 1936; synonymy: Pereira & Martínez, 1956

Distribution (Fig. 156): Argentina (MI), Brazil (GO, MG)

7. *Dendropaemon* (*Coprophanaeoides*) *inflatus* Génier & Arnaud; **new species**

Distribution (Fig. 156): Brazil (MG)

8. *Dendropaemon* (*Coprophanaeoides*) *pauliani* Martínez & Pereira, 1960

Distribution (Fig. 156): Bolivia

9. *Dendropaemon* (*Coprophanaeoides*) *pilosissimus* Génier & Arnaud; **new species**

Distribution (Fig. 156): Paraguay

10. *Dendropaemon* (*Coprophanaeoides*) *renatii* Olsoufieff, 1924

*Dendropaemon refulgens olsufieffi* Blut, 1939; **new synonymy**

Distribution (Fig. 156): Brazil (BA, GO, MG, MT, PR, RS, RO, SP), Paraguay

### ***Dendropaemon* (*Dendropaemon*) Perty, 1830**

11. *Dendropaemon* (*Dendropaemon*) *aenigmaticus* Génier & Arnaud; **new species**

Distribution (Fig. 157): French Guiana

12. *Dendropaemon* (*Dendropaemon*) *amazonicus* Génier & Arnaud; **new species**

Distribution (Fig. 157): Brazil (AM)

13. *Dendropaemon* (*Dendropaemon*) *angustulus* Génier & Arnaud; **new species**

Distribution (Fig. 157): Brazil (AM, PA, RR), French Guiana, Guyana, Venezuela

14. *Dendropaemon* (*Dendropaemon*) *ater* (Laporte, 1832)

Distribution (Fig. 157): Brazil (MT), French Guiana, Guyana

15. *Dendropaemon* (*Dendropaemon*) *flechtmanni* Génier & Arnaud; **new species**

Distribution (Fig. 157): Brazil (BA, DF, MG, MS, RJ)

16. *Dendropaemon* (*Dendropaemon*) *larseni* Génier & Arnaud; **new species**

Distribution (Fig. 157): Peru

17. *Dendropaemon* (*Dendropaemon*) *piceus* (Perty, 1830)

Distribution: Brazil (? GO)

18. *Dendropaemon* (*Dendropaemon*) *telephus* Waterhouse, 1891

Distribution: French Guiana, Guyana

19. *Dendropaemon* (*Dendropaemon*) *viridis* (Perty, 1830)

*Dendropaemon crenostriatus* Felsche, 1909; **new synonymy**

Distribution (Fig. 157): Brazil (GO, MG, PA, RS, SP)

### ***Dendropaemon* (*Enicotarsus*) Laporte, 1831**

20. *Dendropaemon* (*Enicotarsus*) *viridipennis* (Laporte, 1831); **new combination**

Distribution (Fig. 157): Argentina, Brazil (BA, DF, GO, MG, MT, PA, RJ, SC, SP), Paraguay, Uruguay

### ***Dendropaemon* (*Eurypodea*) Klages, 1906**

21. *Dendropaemon* (*Eurypodea*) *convexus* Harold, 1869; **new combination**

Distribution (Fig. 158): Bolivia, Brazil (DF, GO, MG, SP), Peru

22. *Dendropaemon* (*Eurypodea*) *fredericki* Klages, 1906; **new combination**

Distribution (Fig. 158): Brazil (PA), French Guiana, Venezuela

### ***Dendropaemon* (*Glaphyropaemon*) Génier & Arnaud; **new subgenus****

23. *Dendropaemon* (*Glaphyropaemon*) *angustipennis* Harold, 1869; **new combination**

*Dendropaemon silvanus* Blut, 1939; **new synonymy**

Distribution (Fig. 158): Bolivia, Brazil (AC, AM, MG, PA), Colombia, Ecuador, Peru

24. *Dendropaemon* (*Glaphyropaemon*) *bahianus* Harold, 1868; **new combination**

*Dendropaemon lobatus* Waterhouse, 1891; **new synonymy**

*Dendropaemon tenuitarsis* Felsche, 1909; **new synonymy**

*Dendropaemon batrachites* Blut, 1939; **new synonymy**

Distribution (Fig. 158): Brazil (BA, DF, GO, MG, MT, PB, RJ), Paraguay

25. *Dendropaemon* (*Glaphyropaemon*) *inemarginatus* Génier & Arnaud; **new species**

Distribution (Fig. 158): Venezuela (AM)

***Dendropaemon (Nigropaemon)* Génier & Arnaud, new subgenus**

26. *Dendropaemon (Nigropaemon) nigrutilus* Génier & Arnaud; **new species**

Distribution (Fig. 158): Brazil (AM, RR), Colombia, French Guiana, Guyana, Suriname, Venezuela

***Dendropaemon (Onthoecus)* Lacordaire, 1856**

27. *Dendropaemon (Onthoecus) amyntas* Lacordaire, 1856; **new combination**

*Dendropaemon waterhousi* Olsoufieff, 1924; **new synonymy**

Distribution (Fig. 159): Brazil (BA, ES, MG, MS, RJ)

28. *Dendropaemon (Onthoecus) attalus* Génier & Arnaud; **nomen novum**

*Dendropaemon amyntas* Harold, 1868; **primary junior homonym**

Distribution (Fig. 159): Brazil (AM, MT, PA, RO), French Guiana, Guyana

29. *Dendropaemon (Onthoecus) lydiae* Génier & Arnaud; **new species**

Distribution (Fig. 159): Brazil (AC, AM, MT, PA, RR)

30. *Dendropaemon (Onthoecus) moretto* Génier & Arnaud; **new species**

Distribution (Fig. 159): Colombia, Ecuador

***Dendropaemon (Paradendropaemon)* Edmonds, 1972**

31. *Dendropaemon (Paradendropaemon) ganglbaueri* Felsche, 1909

Distribution (Fig. 159): Brazil (? SP)

32. *Dendropaemon (Paradendropaemon) vazdemelloi* Génier & Arnaud; **new species**

Distribution (Fig. 159): Brazil (BA, DF, MG, SP)

***Dendropaemon (Rutilopaemon)* Génier & Arnaud, new subgenus**

33. *Dendropaemon (Rutilopaemon) refulgens* Waterhouse, 1891; **new combination**

Distribution (Fig. 160): French Guiana

***Dendropaemon (Streblopaemon)* Génier & Arnaud, new subgenus**

34. *Dendropaemon (Streblopaemon) fractipes* Felsche, 1909; **new combination**

Distribution (Fig. 160): Argentina, Brazil (DF, ES, SP), Guyana

***Dendropaemon (Sulcopaemon)* Génier & Arnaud, new subgenus**

35. *Dendropaemon (Sulcopaemon) fascies* Blut, 1939; **new combination**

Distribution (Fig. 160): Argentina (MI), Brazil (MS), Paraguay, Uruguay

36. *Dendropaemon (Sulcopaemon) haroldi* Olsoufieff, 1924; **new combination**

Distribution (Fig. 160): Brazil (GO, MG, MT)

37. *Dendropaemon (Sulcopaemon) latistriatus* Génier & Arnaud; **new species**

Distribution (Fig. 161): Paraguay

38. *Dendropaemon (Sulcopaemon) nitidicollis* Olsoufieff, 1924; **new combination**

*Dendropaemon subcylindricus* Blut, 1939; **new synonymy**

Distribution (Fig. 160): Brazil (GO)

39. *Dendropaemon (Sulcopaemon) quadratus* (Laporte, 1832); **new combination**

*Dendropaemon smaragdinus* Waterhouse, 1891; **new synonymy**

*Dendropaemon planus* Olsoufieff, 1924; **new synonymy**

*Dendropaemon smaragdinus chevrolati* Blut, 1939; **new synonymy**

Distribution (Fig. 160): Argentina (MI), Brazil (GO, MS), Paraguay

40. *Dendropaemon (Sulcopaemon) similis* Blut, 1939; **new combination**

Distribution: Paraguay

***Dendropaemon (Titthopaemon)* Génier & Arnaud, new subgenus**

41. *Dendropaemon (Titthopaemon) denticollis* Felsche, 1909; **new combination**

*Dendropaemon denticollis lividus* Blut, 1939; **new synonymy**

Distribution (Fig. 161): Bolivia, Brazil (DF, GO, MA, MG, MS, MT, SP), Paraguay



## Phylogeny

### Material and methods

In order to develop an intrageneric classification for *Dendropaemon*, we conducted a phylogenetic analysis. All currently known species were included in the analysis and eight closely related taxa added as outgroup. The taxa included in the outgroup belong to two New World tribes: Eucraniini [*Ennearabidus lobocephalus* (Harold) and *Anomiopsoides heteroclyta* (Blanchard)] and Phanaeini [*Coprophanaeus telamon* (Erichson), *Gromphas aeruginosa* (Perty), *Homalotarsus impressus* Janssens, *Megatharsis buckleyi* Waterhouse, *Oruscatus davus* (Erichson) and *Phanaeus splendidulus* (Fabricius)]. The monophyly of the tribe Phanaeini and its close relationship to Eucraniini was first demonstrated by Ocampo & Hawks (2006) using molecular data and recently by Tarasov & Génier (2015) using morphological data. As 11 of the 42 currently recognized species are known from a single specimen, we were forced to restrict the character set to external morphology in order to preserve the integrity of the primary type. Only the overall shape of parameres was used when possible, 5 species are known by female holotype only. A total of 71 characters (appendix 1) were scored. The character matrix can be viewed online or downloaded from MorphoBank (<http://www.morphobank.org> project 2332). The matrix was built using Mesquite version 2.7 (Maddison & Maddison, 2009), the analysis was run through TNT version 1.1 (Goloboff et al., 2003) and the resulting trees analyzed in Winclada (Nixon, 2002).

The character set was run in TNT using traditional search option to find the most parsimonious trees under the following parameters: memory set to hold 1 000 000 trees, 1000 TBR replicates, saving 1000 trees per replicate, zero-length branches collapsed. Separate analyses were conducted with the same setting options but using implied weights (Goloboff et al., 2003) with concavity factor 50; we did not aim at exploring the variation in tree topology over a range of different weighting conditions, as different concavity factor values were shown to slightly alter topology Tarasov & Génier (2015). Cladogram branch support was calculated as Bremer support values (Bremer, 1994) by searching for suboptimal trees using the trees obtained by the equal weights analyses. Bremer support was calculated from 100 000 trees up to ten steps longer than the shortest one using TBR swapping on the most parsimonious trees (MPTs).

### Result and discussion

The analyses under equal weights yielded 144 MPTs of length 440. The strict consensus of these MPTs (Fig. 162) is well resolved with numerous nodes having moderate to high Bremer support values. Implied weight analysis resulted in one tree (Fig. 163) of the same length as equal weight analysis. The trees from both analyses are congruent, although the implied weight tree has slightly higher resolution. The implied weight tree is chosen by us as the resulting tree for further discussion. This tree (Fig. 163) places the species previously included in the genus *Tetramereia* sister to the two species included in the subgenus *Paradendropaemon*. Because the branch including species in the former genera *Paradendropaemon*, *Tetramereia* and the rest of *Dendropaemon* is well supported, we now consider *Paradendropaemon* and *Tetramereia* as subgenera of *Dendropaemon*.

The redefined genus *Dendropaemon* is unique from all other Phanaeini by the presence of a prosternal spiniferous process (character 34). This character is, in some individual, reduced and barely visible. It is not clear why this acute protrusion evolved, but its placement adjacent to mouthparts may suggest a function in a derived feeding behavior of the genus, perhaps associated to its inquiline lifestyle. All species of *Dendropaemon* have a reduced number of meso- and metatarsomeres as shown in character 49 and 50. The number of tarsomere varies from four to two. The two most closely related taxa (*Megatharsis buckleyi* and *Homalotarsus impressus*) have 5 segmented tarsi and are lacking the characteristic pygidial furrows. The third non homoplasious character (62) separating *Dendropaemon* is the modification of the metatibial ventral surface. Unlike all other Phanaeini, the surface sculpturing is modified from the normally more or less smooth surface to coarse microsculpturing. Such modification is seen in a number of inquiline Coleoptera. Unsurprisingly, *Dendropaemon refulgens*, which is basal to all other species except those in the subgenera *Paradendropaemon* and *Tetramereia* has the ventral surface of the metatibia less heavily microsculptured. The fourth non homoplastic character separating *Dendropaemon* from the rest of the Phanaeini is the presence of dense minute punctures on abdominal sternite. These punctures are most likely the opening of exocrine glands (Vaz-de-Mello & Génier, 2009). Finally, the presence of pygidial oblique furrows is unique among Scarabaeinae. The exact function of the structure is unknown but it is believed that this is also an adaptation for their inquiline life style.

Interestingly, species belonging to the subgenus *Coprophanaeoides* came out as a well-supported group at the apical portion of the tree. All other species between the clade that comprise *Paradendropaemon* and *Tetramereia* are distributed in clade comprising between 1 and 9 species. In order to maintain the morphologically well-defined *Coprophanaeoides* valid, we have to consider each of the clade as a distinct subgenus.

The first group (*Rutilopaemon*) comprises a single species which is somewhat isolated by the less derived body shape and meso- and metafemoral and tibial configuration which resemble species of the genus *Phanaeus*. The second group comprises 4 species and the former synonym *Onthoecus* is used as the subgeneric name. The third group is monotypic and comprises the very characteristic *D. fractipes*. Ten homoplasious synapomorphies distinguish this species but it is also unique in having the mesotibia highly modified (see species description). This character was left out of the analysis as it autapomorphic. The fourth group is also monotypic and comprise *D. viridipennis*. This species is characterized by 5 homoplasious synapomorphies (character 11, 13 15 51, 67). The atrophied ventral ocular surface combined with the shape of the last tarsal segment and the characteristic black body strongly contrasting with the metallic green elytra is unique among Phanaeini. The fifth clade, *Dendropaemon* s. str., include *D. viridis* and *D. amazonicus* and the rest of the flat bodied and black species. This clade is characterized by the absence of non emarginate clypeal edge externally to clypeal teeth (char. 8) combined with the 2-segmented meso and metatarsi which have the last tarsal segment truncate instead of spiniform (chars. 50–51). The sixth clade (*Nigropaemon*) comprise a single characteristic species. This branch is characterized by 4 homoplasious synapomorphies (char. 2, 33, 42, 59). The overall aspect of this species would place it within either of the next two clades (*Glaphyropaemon* and *Sulcopaemon*) but its black body, the lack of transverse propleural carina and especially the unmodified apicoposterior angle of the mesofemur isolate it. The seventh clade (*Glaphyropaemon*) comprises 3 species characterized by 8 homoplasious synapomorphies (chars. 4, 7, 15, 20, 31, 32, 33, 51). The eighth clade (*Sulcopaemon*) comprises 6 species characterized by 4 homoplasious synapomorphies (char. 13, 14, 24, 71). The ninth clade (*Titthopaemon*) consist of a single very characteristic and frequently collected species, *D. denticollis*. Two characters (19, 21) separate *D. denticollis* from the species that belong to *Coprophanaeoides*, one of which is autapomorphic and unique among Scarabaeinae. The presence of a small tubercle on the pronotal anterior edge, which is a non homoplasious synapomorphy, and character 21 which is homoplasious. Because 12 characters (1, 8, 9, 11, 23, 27, 28, 30, 31, 33, 37, 68) including 2 (30, 37) non homoplasious character, we prefer to regard *D. denticollis* as distinct from *Coprophanaeoides* although it could be a highly autapomorphic species. Finally, the terminal clade, comprising the 10 species included in *Coprophanaeoides*. Species belonging to this group were formally diagnosed by having the transverse propleural carina present along the coxal cavity only, large eyes and the presence of scattered erect setae on dorsum. Character 33, the development of the transverse propleural carina is found to be homoplasious in the present study. The complete character transformation is presented in Fig. 164.

The current systematic for the genus is based on the analysis presented herein. We should however point out that 27% of the species are known by a single specimen suggesting that there are a significant amount of species still to be found and described. A robust phylogeny must use thorough internal morphology in addition to the external morphology character set used in the current analysis. It was not possible with the currently available specimens as we did not attempt to dissect primary types. Experience taught us that producing at least an incomplete work will provide a starting point for students and stimulate collecting efforts for this distinctive group of Coleoptera.

## Concluding remarks

When this project was undertaken we never realized that there would be so many problems with the taxonomy and nomenclature in the group. This is the first step in trying to address all of them but there are still problems remaining, especially in the taxonomy of the subgenera *Dendropaemon* (s. str.) and *Dendropaemon* (*Eurypodea*). We have remained as conservative as possible in addressing the problems in these groups and a more definitive interpretation will require much more abundant material. The classification of the group was completely revised. At first, we thought that species belonging to the subgenus *Coprophanaeoides* would form a sister group to the rest of the *Dendropaemon*, but the phylogenetic analysis quickly ruled out this possibility. We therefore had to consider a new system involving many more subgenera in order to retain the distinctive *Coprophanaeoides* valid. In the end, this system, although largely based on external morphology, was well supported by the overall shape of the

parameres. This is especially meaningful in a group where the parameres are not highly variable. For some species we investigated the morphology of the internal sac but this is not complete, and we believe that it will yield a more robust phylogeny when the characters are investigated for all of the species in the group. It is our hope that this study will encourage the collection of more material. The few observations on the biology of the group suggests that they are inquiline and are active above ground for very short periods of time at the beginning of the wet season. With this study, all of the Phanaeinae genera containing more than a single species will be revised. Only *Homalotarsus* Janssens and *Megatharsis* Waterhouse, each with a single very rarely collected species will remain unrevised. The morphology of the two species belonging to these genera suggest that they are also inquiline, but our study suggest that they belong to a different clade and this behavior would have evolved separately.

## Acknowledgements

We received help from numerous colleagues and we warmly thank them for their contribution to this work: Bob Anderson and Andrew Smith for their input on language and nomenclature; Yves Cambefort for insight with elucidating the gender of *Dendropaemon*; Sergei Tarasov for assistance with the phylogenetic analysis and his pertinent comments which improved the manuscript; Fernando Vaz de Mello for his eagerness to share his insights with us and answer all of our questions about Brazilian localities, translating the abstract and identification key; David Edmonds for kindly agreeing to deposit types from his collection into the CMN collection and providing us with information that helped in resolving problems; Paul Schoolmeesters for quickly providing us with numerous rare publications; all the curators listed in the material and method section for entrusting us with these rarely collected beetles for so long. Michael Balke for providing figures 19 and 140 and Antoine Mantilleri for picture 146. Finally, the senior author wishes to thank Henry Howden for all the encouragement given over the years and Carole LeBlond for improving language, her patience and continual support.

## Author contributions

Initiate the study and gathered material: FG PA. Acquisition, analysis and interpretation of data, wrote the paper, photography and iconography: FG.

## BIBLIOGRAPHY

- Agassiz, J.L.R. (1846) *Nomenclatoris zoologici index universalis, continens nomina systematica classium, ordinum, familiarum et generum animalium omnium, tam viventium quam fossilium, secundum ordinem alphabeticum unicum disposita, adjectis homonymis platinarum, nec non variis adnotationibus et emendationibus*. Jent & Gassman, Soloduri, viii+393 pp.  
<http://dx.doi.org/10.5962/bhl.title.1819>
- Ampudia-Gatty, C., Estrella-Grández, R.V. & Ari-Noriega, J. (2012) New country record for *Tetramereia convexa* (Harold, 1869) (Coleoptera: Scarabaeidae: Scarabaeinae). *Insecta Mundi*, 0270, 1–4.
- Arnaud, P. (1982) Liste des types de Phanaeini du Muséum national d'Histoire naturelle de Paris, suivi d'une note synonymique pour quatre espèces décrite par G. d'Olsoufieff (Coleoptera, Scarabaeidae). *Revue Française d'Entomologie*, Nouvelle Série, 4 (3), 113–118.
- Arnaud, P. (2002) *Phanaeini, Dendropaemon, Tetramereia, Homalotarsus, Megatharsis, Diabroctis, Coprophanaeus, Oxysternon, Phanaeus, Sulcophanaeus*. *Les Coléoptères du Monde*, 28. Hillside Books, Canterbury, 151 pp.
- Barbosa Silva, F.A. (2008) *Estudo da Comunidade de Scarabaeinae (Coleoptera: Scarabaeidae) em dois Ambientes do Refúgio Ecológico Charles Darwin, Igarassu—PE*. M.Sc. Thesis, Universidade Federal de Pernambuco—UFPE, Recife, 79 pp.
- Blackwelder, R.E. (1944) Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America. Part 2. *United States National Museum Bulletin*, 185, 189–341.  
<http://dx.doi.org/10.5479/si.03629236.185.2>
- Blackwelder, R.E. (1957) Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America. Part 6. *United States National Museum Bulletin*, 185, 927–1482.  
<http://hdl.handle.net/10088/21283>
- Blut, H. (1939) Beitrag zur Verbreitung und Systematik der Gattung *Dendropaemon*. *Archiv für Naturgeschichte*, N.F., 8, 263–300.
- Branco, T. (1991) Révision des genres du « groupe » *Stiptopodius* : Les genres *Stiptopodius* Harold et *Stiptotarsus* Branco

- (Coleoptera : Scarabaeidae). *Annales de la Société Entomologique de France*, Nouvelle Série, 27 (3), 265–285.
- Bremer, K. (1994) Branch support and tree stability. *Cladistic*, 10 (3), 295–304.  
<http://dx.doi.org/10.1111/j.1096-0031.1994.tb00179.x>
- Brullé, A. (1837) Histoire naturelle des insectes, comprenant leur classification, leurs mœurs, et la description des espèces. In: Audouin, J.V. & Brullé, G.A. (Eds.), *Histoire naturelle des insectes, traitant de leur organisation et de leurs mœurs en général*, Par M. V. Audouin, et comprenant leur classification et la description des espèces, Par M. A. Brullé. Tome VI. *Coléoptères III*. F.D. Pillot, Paris, 448 pp.  
<http://dx.doi.org/10.5962/bhl.title.34228>
- Burmeister, H. (1861) Die Ateuchiden ohne Fulskrallen, monographisch bearbeitet. *Berliner Entomologische Zeitschrift*, 5, 55–67.
- Castelnau, M. Le Conte de (1840) *Histoire Naturelle des Insectes Coléoptères. Tome deuxième. Histoire Naturelle des animaux articulés, crustacés, arachnides, myriapode et insectes. Tome troisième*, P. Duméril, Paris, 564 pp.  
<http://dx.doi.org/10.5962/bhl.title.47104>
- Dejean, P.F.M.A. (1833) *Catalogue des coléoptères de la collection de M. le Comte Dejean. Livraison 2. Deuxième édition*. Méquignon-Marvis Père et Fils, Paris, 80 pp. [pp. 97–176]
- Dejean, P.F.M.A. (1836) *Catalogue des coléoptères de la collection de M. le Comte Dejean. Troisième édition, revue, corrigée et augmentée*. Méquignon-Marvis Père et Fils, Paris, xiv + 503 pp.
- Edmonds, W.D. (1972) Comparative Skeletal Morphology, Systematics and Evolution of the Phanaeine Dung Beetles (Coleoptera: Scarabaeidae). *University of Kansas Science Bulletin*, 49 (11), 731–874.
- Edmonds, W.D. (1994) Revision of *Phanaeus* MacLeay, a New World Genus of Scarabaeine Dung Beetles (Coleoptera: Scarabaeidae, Scarabaeinae). *Serial Publication of the Natural History Museum of Los Angeles County, Contribution in Science*, 443, 1–105.
- Escobar, F. (2000) Diversidad y Distribución de los escarabajos del estiércol (Coleoptera: Scarabaeidae: Scarabaeinae) de Colombia. In: Martín-Piera, F., Morrone, J.J. & Melic, A. (Eds.), *Hacia un Proyecto CYTED para el Inventario y Estimación de la Diversidad Entomológica en Iberoamérica: PRIBES-2000. Monografía Tercer Milenio. Vol. 1*. Sociedad Entomológica Aragonesa, Zaragoza, pp. 197–210.
- Evenhuis, (1997) *Litteratura taxonomica dipterorum (1758–1930). Volume II. L-Z*. Backhuys Publishers, Leiden, 427–871.  
<http://dx.doi.org/10.1002/mmnd.4800460212>
- Evenhuis (2007) The Insects and Spider Collections of the World Website. Available from: <http://hbs.bishopmuseum.org/codens/codens-r-us.html> (accessed 17 September 2014)
- Evenhuis, (2012) François-Louis Comte de Castelnau (1802–1880) and the mysterious disappearance of his original insect collection. *Zootaxa*, 3168, 53–63
- Felsche, C. (1908) Über Coprophage Scarabaeiden (Col.). *Deutsche Entomologische Zeitschrift*, 1908 (2), 271–274.  
<http://dx.doi.org/10.1002/mmnd.48019080210>
- Felsche, C. (1909) Neue und alte coprophage Scarabaeiden. (Col.). *Deutsche Entomologische Zeitschrift*, 1909 (6), 751–765.  
<http://dx.doi.org/10.1002/mmnd.48019090608>
- Gillet, J.J.E. (1911) *Coleopterorum Catalogus, Scarabaeidae: Coprinae I. Vol. 38*. W Junk, Berlin, 263 pp.
- Gillett, C.P.D.T., Gillett, M.P.T., Gillett, J.E.D.T. & Vaz-de-Mello, F.Z. (2010) Diversity and distribution of the scarab beetle tribe Phanaeini in the northern states of the Brazilian Northeast (Coleoptera: Scarabaeidae: Scarabaeinae). *Insecta Mundi*, 0118, 1–19.
- Goloboff, P.A., Farris, J.S. & Nixon, K. (2003) TNT: Tree Analysis Using New Technology. Version 1.0, Beta test v. 0.2. [Program and documentation available from: <http://www.lillo.org.ar/phylogeny/tnt/> (Accessed 6 Apr. 2016)]
- Guérin-Ménéville, F.E. (1844) *Iconographie du règne animal de G. Cuvier, ou représentation d'après nature de l'une des espèces les plus remarquables, et souvent non encore figurées, de chaque genre d'animaux. Avec un texte descriptif mis au courant de la science. Ouvrage pouvant servir d'atlas à tous les traités de zoologie. Tome III. Texte explicatif. Insectes*, J.B. Ballière, Paris, 576 pp.
- Hamel-Leigue, A.C., Herzog, S.K., Mann, D.J., Larsen, T.H., Gill, B.D., Edmonds, W.D. & Spector, S. (2009) Distribución e historia natural de Escarabajos coprófagos de la tribu Phanaeini (Coleoptera: Scarabaeidae: Scarabaeinae) en Bolivia. *Kemppfiana*, 5 (2), 43–95.
- Harold, E. von (1868) Diagnosen neuer Coprophagen. *Coleopterologische Hefte*, 3, 80–86.
- Harold, E. von (1868) Diagnosen neuer Coprophagen. *Coleopterologische Hefte*, 4, 79–86.
- Harold, E. von (1869) Diagnosen neuer Coprophagen. *Coleopterologische Hefte*, 5, 95–104.
- Harold, E. von (1869) Tom. IV. Scarabaeidae. In: Gemminger, M. & Harold, E. von (Eds.), *Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus autoribus Dr. Gemminger et B. de Harold, E.H. Gummi, Monachii*, pp. 979–1346.  
<http://dx.doi.org/10.5962/bhl.title.9089>
- Harold, E. von (1875) Verzeichniss der von Dr. Teuscher in Cantagallo gesammelten coprophagen Lamellicornien. *Coleopterologische Hefte*, 13, 57–72.
- Harold, E. von (1877) Enumération des Lamellicornes Coprophages rapportés de l'Archipel Malais, de la Nouvelle Guinée et de l'Australie boréale par M. M. J. Doria, O. Beccari et L. M. D'Albertis. *Annali del Museo civico di storia naturale di Genova*, 10, 38–110.



- Janssens, A. (1940) Contribution à l'étude des coléoptères lamellicornes coprophages, II. Remarques sur quelques Phanaeides. *Bulletin du Musée royal d'Histoire naturelle de Belgique*, 16 (34), 1–7.
- Janssens, A. (1954) Contribution à l'étude des coléoptères Lamellicornes. XVII. – Description d'une nouvelle et curieuse espèce d'*Onthophagus* du Parc National de L'Upemba et considérations sur l'évolution et la convergence de certains coléoptères Scarabaeinae. *Institut Royal des Sciences Naturelles de Belgique: Volume jubilaire Victor Van Straelen, directeur de l'Institut Royal des Sciences Naturelles de Belgique 1925-1954*, 2 (Zoologie), 971–976.
- Klages, E.A. (1906) *On the Scarabaeidae of Southern Venezuela. A Wonderful New Form of the Group Copres*. Privately published, Crafton, PA, 1 pp.
- Klages, E.A. (1907) A wonderful new beetle of the group Copres. *Proceedings of the Entomological Society of Washington*, 8 (3–4), 141–142.
- Kolbe, H. (1905) Über die Lebensweise und die geographische Verbreitung der coprophagen Lamellicornier. *Zoologische Jahrbuch*, Supplement VIII, 475–594.
- Lacordaire, T. (1856) *Histoire naturelle des insectes. Genera des Coléoptères, ou exposé methodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes. Tome troisième contenant les familles des pectinicornes et lamellicornes*, Librairie Encyclopédique de Roret, Paris, 594 pp.  
<http://dx.doi.org/10.5962/bhl.title.67686>
- Lacordaire, T. (1856) *Histoire naturelle des insectes. Genera des Coléoptères, ou exposé methodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes. Atlas*. Librairie encyclopédique de Roret, Paris, 16 pp., pls. 1–40.  
<http://dx.doi.org/10.5962/bhl.title.67686>
- Lacordaire, T. & Chapuis, F. (1876) *Histoire naturelle des insectes. Genera des coléoptères, ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes. Histoire naturelle des insectes, Tome Douzième*. Librairie Encyclopédique de Roret, Paris, 424 pp.  
<http://dx.doi.org/10.5962/bhl.title.67686>
- Lange, R.B. (1947) Ensaio da zoogeografia dos Scarabaeidae do Paraná com algumas notas eto-ecológicas. *Arquivos do Museu Paranaense*, 6, 305–315.
- Laporte, F.L. de (1831) (Description of *Enicotarsus* and *Enicotarsus viridipennis*). *Magazin de Zoologie*, 1 (2), pl. 35.
- Laporte, F.L. de (1832) Mémoire sur cinquante espèces nouvelles ou peu connues d'insectes. *Annales de la Société Entomologique de France*, 1, 386–415.
- Larsen, T.H., Lopera, A. & Forsyth, A. (2006) Extreme Trophic and habitat Specialization by Peruvian Dung Beetles (Coleoptera: Scarabaeidae: Scarabaeinae). *The Coleopterists Bulletin*, 60 (4), 315–324.  
[http://dx.doi.org/10.1649/0010-065x\(2006\)60\[315:etahsb\]2.0.co;2](http://dx.doi.org/10.1649/0010-065x(2006)60[315:etahsb]2.0.co;2)
- Maddison, W.P. & Maddison, D.R. (2009) Mesquite: a modular system for evolutionary analysis. Version 2.7. Available from: <http://mesquiteproject.org> (accessed 1 September 2010)
- Martínez, A. (1944) Insectos nuevos o poco conocidos II. *Revista Argentina de Entomología*, 2, 34–40.
- Martínez, A. & Clavijo, J. (1990) Notas sobre Phanaeina Venezolanos, con descripción de una nueva subespecie de *Diabroctis* (Coleoptera, Scarabaeidae, Coprini). *Boletín de Entomología Venezolana, Nueva Serie*, 5 (20) 147–157.
- Martínez, A. & Pereira, F.S. (1960) Algunos interesantes coprini neotropicales (Col. Scarabaeidae). *Revista de la Sociedad Entomologica Argentina*, 22 (1–4), 77–84.
- Monaghan, M.T., Inward, D.J.G., Hunt, T. & Vogler, A. (2007) A molecular phylogenetic analysis of the Scarabaeinae (dung beetles). *Molecular Phylogenetics and Evolution*, 45, 674–692.  
<http://dx.doi.org/10.1016/j.ympev.2007.06.009>
- Naskrecki, P. (2008) Mantis v. 2.0 - A Manager of Taxonomic Information and Specimens. Available from: <http://140.247.119.225/Mantis/index.htm> (accessed 14 January 2015)
- Nixon KC (2002) WinClada ver. 1.00.08. Published by the author, Ithaca, NY. Available from: <http://www.cladistics.com/aboutWinc.htm> (accessed 14 January 2015)
- Noriega-A., J.A., Rengifo, J.M. & Vaz-de-Mello, F.Z. (2008) First report of the genus *Tetramereia* Klages, 1907 (Coleoptera: Scarabaeidae: Phanaeini) in Colombia—Note to its distribution. *Biota Colombiana*, 9 (1), 133–135.
- Ocampo, F.C. & Hawks, D.C. (2006) Molecular phylogenetics and evolution of the food relocation behaviour of the dung beetle tribe Eucraniini (Coleoptera: Scarabaeidae: Scarabaeinae). *Invertebrate Systematics*, 20, 557–5.  
<http://dx.doi.org/10.1071/IS05031>
- Oken, L. (1833) *Isis Encyclopädische Zeitschrift, vorzüglich für Naturgeschichte, vergleichende Anatomie und Physiologie, von Oken*, 12, 1145–1232.
- Olsoufieff, G. d' (1924) Les Phanaeides (Coleoptera-Lamellicornia), Famille Scarabaeidae—Tr. Coprini. *Insecta*, 13, 4–172, 15 pls.
- Pereira, F.S. & Martínez, A. (1956) Algunas notas sinonimicas en Phanaeini (Col. Scarabaeidae, Coprinae). *Revista Brasileira de Entomologia*, 5, 229–240.
- Péringuey, L. (1901) Descriptive catalogue of the Coleoptera of South Africa (Lucanidae and Scarabaeidae). *Transactions of the South African Philosophical Society*, 12 (1), 1–563.  
<http://dx.doi.org/10.5962/bhl.title.8963>
- Perty, J.A.M. (1830) De Insectorum in America Meridionali habitantium vitae genere, moribus ac distributione geographica, observationes nonnullae. In: Spix, J. & Martius, C. (Eds.), *Delectus animalium articulorum, quae in itinere per Brasiliam*

annis MDCCCXVII—MDCCCXX jussu et auspiciis Maximiliani Josephi I. Bavariae regis augustissimi peracto collegerunt Dr. J. B. de Spix, et Dr. C. F. Ph. de Martius. Digessit, descripsit, pingenda curavit Dr. Maximilianus Perty, praefatus est edidit Carol. Frederic. Philip. de Martius, accedit dissertatio de insectorum in America Meridionali habitantium vitae genere, moribus et distributione geographica. Impensis Editoris, Monachii, pls. 1–40.  
<http://dx.doi.org/10.5962/bhl.title.9366>

- Perty, J.A.M. (1830) De Insectorum in America Meridionali habitantium vitae genere, moribus ac distributione geographica, observationes nonnullae. In: J. Spix & C. Martius (Eds.), *Delectus animalium articulorum, quae in itinere per Brasiliam annis MDCCCXVII—MDCCCXX jussu et auspiciis Maximiliani Josephi I. Bavariae regis augustissimi peracto collegerunt Dr. J. B. de Spix, et Dr. C. F. Ph. de Martius. Digessit, descripsit, pingenda curavit Dr. Maximilianus Perty, praefatus est edidit Carol. Frederic. Philip. de Martius, accedit dissertatio de insectorum in America Meridionali habitantium vitae genere, moribus et distributione geographica. (fasc. 1)*, Frid. Fleischer, Monachii, pp. 1–44.  
<http://dx.doi.org/10.5962/bhl.title.9366>
- Pessôa, S.B. & Lane, F. (1936) Sobre os coleopteros do genero *Dendropaemon* Perty, de S. Paulo e regiões vizinhas. *Revista de Biologia e Hygiene*, 7 (2), 89–93.
- Pessôa, S.B. & Lane, F. (1941) Coleópteros necróphagos de interesse médico-legal. Ensaio monográfico sobre a família Scarabaeidae de São Paulo e regioes vizinhas. *Arquivos de Zoologia do Estado de São Paulo*, 2, 389–504.
- Philips, T.K., Edmonds, W.D. & Scholtz, C.H. (2004) A phylogenetic analysis of the New World tribe Phanaeini (Coleoptera: Scarabaeidae: Scarabaeinae): Hypotheses on relationships and origins. *Insect Systematics & Evolution*, 35, 43–63.  
<http://dx.doi.org/10.1163/187631204788964664>
- Philips, T.K. & Scholtz, C.H. (2000) A new genus and species of trichome-bearing dung beetle (Coleoptera: Scarabaeidae: Scarabaeinae). *African Entomology*, 8 (2), 227–231.
- Price, D.L. (2009) Phylogeny and biogeography of the dung beetle genus *Phanaeus* (Coleoptera: Scarabaeidae). *Systematic Entomology*, 34, 137–150.  
<http://dx.doi.org/10.1111/j.1365-3113.2008.00443.x>
- Scherer, G. (1983) Die von J. B. v. Spix und C. F. Ph. v. Martius in Südamerika gesammelten Coleopteren (Coleoptera-Scarabaeidae, Lucanidae und Passalidae). *Spixiana, Supplement*, 9, 295–305.
- Shorthouse, D.P. (2010) SimpleMapp, an online tool to produce publication-quality point maps. Available from <http://www.simplemapp.net> (Accessed 14 Dec. 2016)
- Tarasov, S. & Génier, F. (2015) Innovative Bayesian and parsimony phylogeny of dung beetles (Coleoptera, Scarabaeidae, Scarabaeinae) enhanced by ontology-based partitioning of morphological characters. *PLoS ONE*, 10 (3), e0116671.  
<http://dx.doi.org/10.1371/journal.pone.0116671>
- Vaz-de-Mello, F.Z. (2000) Estado Atual de Conhecimento dos Scarabaeidae s. str. (Coleoptera: Scarabaeoidea) do Brasil. In: Martín-Piera, F., Morrone J.J. & Melic A. (Eds.), *Hacia un Proyecto CYTED para el Inventario y Estimación de la Diversidad Entomológica en Iberoamérica: PrIBES-2000. Monografía Tercer Milenio. Vol. 1*. Sociedad Entomológica Aragonesa, Zaragoza, pp. 183–195.
- Vaz-de-Mello, F.Z. & Génier, F. (2009) Notes on the behavior of *Dendropaemon* Perty and *Tetramereia* Klages (Scarabaeidae: Scarabaeinae: Phanaeini). *The Coleopterists Bulletin*, 63 (3), 364–366.  
<http://dx.doi.org/10.1649/1191.1>
- Vitolo-L., A. (2000) Clave para la identificación de los géneros y especies Phanaeinas (Coleoptera: Scarabaeidae: Coprinae: Phanaeini) de Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Física y Naturales*, 24 (93), 591–601.
- Waterhouse, C.O. (1891) New Scarabaeidae in the British Museum: a Fifth Contribution. *The Annals and Magazine of Natural History, including Zoology, Botany, and Geology*, Sixth Series, 8 (43), 53–61.  
<http://dx.doi.org/10.1080/00222939109460388>
- Zimmerman, E.C. (1994) Australian Weevils (Coleoptera: Curculionoidea) Volume I Anthribidae to Attelabidae. *Australian Weevils*, 1, pp. 1–741.

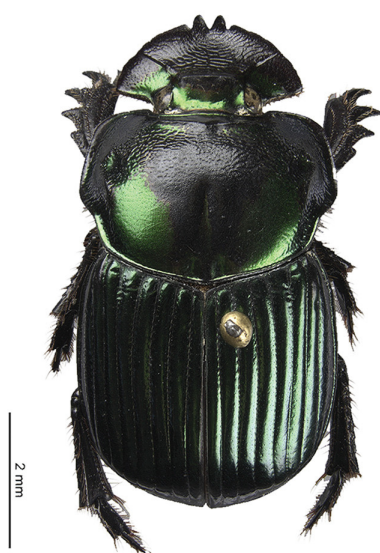
## Appendix 1. Character list:

- 
- |   |  |
|---|--|
| <p>1. Average size:<br/>0) moderate<br/>1) small<br/>2) large</p> <p>2. Coloration:<br/>0) with metallic sheen<br/>1) lacking metallic sheen<br/>2) some individuals with faint metallic sheen</p> <p>3. Overall body shape:<br/>0) ovoid, convex<br/>1) rectangular, flattened</p> <p>4. Dorsal convexity in lateral view:<br/>0) convex<br/>1) approx. 50% of surface nearly flat<br/>2) more than 50% of surface nearly flat</p> <p>5. Clypeal edge between teeth and clypeogenal suture:<br/>0) arcuate<br/>1) straight between<br/>2) dentate</p> <p>6. Clypeal margin:<br/>0) well defined posteriorly<br/>1) ill-defined posteriorly</p> <p>7. Clypeal teeth shape:<br/>0) broadly triangular<br/>1) acutely triangular<br/>2) ogival<br/>3) rounded</p> <p>8. Clypeal teeth external emargination:<br/>0) absent<br/>1) broadly angular<br/>2) acutely angular</p> <p>9. Clypeal teeth median emargination in male:<br/>0) u-shaped<br/>1) narrowly v-shaped<br/>2) broadly v-shaped<br/>3) very deep</p> <p>10. Clypeal teeth lower surface:<br/>0) lacking sharply defined carina<br/>1) with v-shaped carina</p> <p>11. Genal surface:<br/>0) unmodified<br/>1) bluntly carinate<br/>2) carinate<br/>3) bluntly tuberculate</p> <p>12. Dorsal ocular surface:<br/>0) atrophied<br/>1) normally developed<br/>2) hypertrophied</p> <p>12. Dorsal ocular surface:<br/>0) atrophied<br/>1) normally developed<br/>2) hypertrophied</p> <p>13. ventral ocular surface:<br/>0) unmodified<br/>1) atrophied</p> <p>14. Vertex behind the eyes:<br/>0) unmodified<br/>1) with transverse bulge sharply defined anteriorly</p> | <p>15. Clypeofrontal carina in dorsal view:<br/>0) anteriorly arcuate<br/>1) nearly straight<br/>2) posteriorly arcuate<br/>3) obscured</p> <p>16. Clypeofrontal carina male:<br/>0) low<br/>1) lamellate<br/>2) horn shaped</p> <p>17. Clypeofrontal carina male frontal view:<br/>0) trilobate<br/>1) bilobate<br/>2) arcuate<br/>3) straight or nearly so<br/>4) spiniform medially<br/>5) obscured</p> <p>18. Pronotal anterior row of setae:<br/>0) interrupted medially<br/>1) complete</p> <p>19. Anterior pronotal margin:<br/>0) unmodified lateral to eye<br/>1) enlarged and flat lateral to eye<br/>2) tuberculate<br/>3) slightly enlarged and convex lateral to eye</p> <p>20. Surface behind anterior pronotal margin:<br/>0) unmodified lateral to eye<br/>1) furrowed lateral to eye</p> <p>21. Pronotal longitudinal sulcus:<br/>0) simply furrowed<br/>1) sharply defined<br/>2) absent</p> <p>22. Lateral pronotal margin:<br/>0) arcuate anteriorly<br/>1) straight anteriorly<br/>2) sinuous anteriorly</p> <p>23. Lateral pronotal surface:<br/>0) unmodified<br/>1) explanate anteriorly</p> <p>23. Lateral pronotal surface:<br/>0) unmodified<br/>1) explanate anteriorly</p> <p>24. Lateral pronotal fovea:<br/>0) simple or nearly so<br/>1) sharply edged anteriorly and laterally<br/>2) sharply edged anteriorly only<br/>3) sharply edged posterolaterally only</p> <p>25. Lateral pronotal bulge:<br/>0) well developed<br/>1) atrophied</p> <p>26. Pronotal surface:<br/>0) with fine simple punctures throughout<br/>1) variously sculptured</p> <p>27. Pronotal pilosity:<br/>0) absent<br/>1) present</p> <p>28. Pronotal anterior angles surface:<br/>0) punctate<br/>1) granulate<br/>2) rugulate</p> |
|---|--|
-

- 
29. Posterior pronotal margin:
- 0) well defined throughout
  - 1) blunt on each side of midline
  - 2) blunt throughout
  - 3) blunt medially
30. Posterior pronotal margin:
- 0) glabrous
  - 1) with a row of setae posterior to anterior marginal edge
  - 2) with a row of setiferous punctures on anterior marginal edge
31. Pronotal carina median portion of major males in dorsal view:
- 0) simply tuberculate
  - 1) bituberculate
  - 2) transversally tuberculate
  - 3) projecting into a wide lamina
  - 4) long straight carina
  - 5) absent
  - 6) short arcuate carina
  - 7) transverse bilobate bulge
32. Pronotal carina lateral portion in male:
- 0) sinuous
  - 1) arcuate
  - 2) straight
  - 3) absent
33. Transverse propleural carina:
- 0) absent
  - 1) along coxal cavity only
  - 2) extending laterally
34. Prosternum spiniferous process:
- 0) absent
  - 1) present
35. Prosternum:
- 0) approximately horizontal behind procoxae
  - 1) sloping behind procoxae
36. Elytral shape in dorsal view:
- 0) tapering toward apex from basal half
  - 1) tapering toward apex from apical half
37. Elytral surface
- 0) glabrous
  - 1) pubescent throughout
  - 2) pubescent apically only
38. Elytral stria 1 basally:
- 0) away from suture
  - 1) touching or adjacent to sutural margin
39. Elytral striae 2-5:
- 0) similar in width and depth throughout
  - 1) wider and deeper basally
40. Elytral basal margin:
- 0) absent or ill-defined
  - 1) sharply carinate posteriorly
41. Elytral stria 1
- 0) ill-defined apically, not bending externally
  - 1) sharply defined apically, bending externally
  - 2) well-defined apically, not bending externally
42. Elytral apical margin:
- 0) well defined to apicointernal angle
  - 1) lacking between stria 1 and apicointernal edge
  - 2) interrupted before apicointernal edge
43. Protibial dorsal surface:
- 0) lacking aligned row of setae
  - 1) with long aligned row of setae
  - 2) with reduced row of setae
44. Protibial dorsal surface:
- 0) glossy or feebly microsculptured
  - 1) with strong microsculpture
45. Protibial basosuperior edge
- 0) unmodified
  - 1) bluntly lobate
  - 2) lobate
46. Mesotibial apicoventral edge:
- 0) dentate
  - 1) straight or sinuous
47. Mesotibial apical edge:
- 0) with complete setal row
  - 1) with setal row interrupted
48. Mesotibial internal angle:
- 0) obliquely truncated
  - 1) notched
  - 2) rounded
49. Meso and metatarsomere:
- 0) 5-segmented
  - 1) reduced in number
50. Meso and metatarsi:
- 0) 5-segmented
  - 1) 4-segmented
  - 2) 3-segmented
  - 3) 2-segmented
51. Last mesotarsal segment:
- 0) truncated apically
  - 1) spiniformly produced internally
  - 2) simply acute
  - 3) with tarsal claws
52. Meso and metatarsi:
- 0) similar in shape
  - 1) dissimilar in shape
53. Metatarsal segment 1 in male:
- 0) less than 2 times as long as wide at apex
  - 1) approximately 2 times as long as wide at apex
  - 2) approximately 3 times as long as wide at apex
  - 3) more than 4 times as long as wide at apex
54. Metatarsal segment 1 in male:
- 0) with ventroposterior carina well defined and complete
  - 1) with ventroposterior carina ill defined
55. Mesotibia:
- 0) abruptly enlarged toward apex
  - 1) gradually enlarged toward apex
  - 2) abruptly enlarged before apex
  - 3) cylindrical
56. Metasternal anteromedian process:
- 0) acutely angular in lateral view
  - 1) bluntly angular in lateral view
  - 2) broadly arcuate in lateral view
  - 3) spiniform
  - 4) absent
  - 5) broadly produced anteriorly
-



- 
- |   |  |
|---|--|
| <p>57. Metasternal anterior ridge:</p> <ul style="list-style-type: none"> <li>0) absent</li> <li>1) ill-defined, keel shape</li> <li>2) well-defined, v-shaped</li> <li>3) well-defined, triangular</li> <li>4) well-defined, keel-shaped</li> </ul> <p>58. Meso and meta femoral ventral sulcus:</p> <ul style="list-style-type: none"> <li>0) well-defined</li> <li>1) absent or ill-defined</li> </ul> <p>59. Mesofemur apicoposterior angle:</p> <ul style="list-style-type: none"> <li>0) unmodified</li> <li>1) angularly produced posteriorly</li> </ul> <p>60. Metatibial dorsal surface:</p> <ul style="list-style-type: none"> <li>0) glossy between punctures</li> <li>1) with microsculpture</li> </ul> <p>61. Metatibial dorsal surface</p> <ul style="list-style-type: none"> <li>0) largely concave</li> <li>1) largely flat or convex</li> </ul> <p>62. Metatibial ventral surface:</p> <ul style="list-style-type: none"> <li>0) with distinct setal rows, surface more or less glossy</li> <li>1) surface completely covered with irregular sculpturing and punctures</li> <li>2) surface partly covered with irregular sculpturing and punctures</li> </ul> <p>63. Metafemoral ventral surface:</p> <ul style="list-style-type: none"> <li>0) unmodified apically</li> <li>1) depressed apically</li> </ul> <p>64. Metafemoral apicodorsal edge:</p> <ul style="list-style-type: none"> <li>0) unmodified</li> <li>1) lobate beyond tibial insertion, surface coarsely microsculptured and tuberculate</li> <li>2) slightly enlarged, surface finely microsculptured</li> <li>3) lobate beyond tibial insertion, surface coarsely microsculptured</li> </ul> | <p>65. Metafemur in ventral view:</p> <ul style="list-style-type: none"> <li>0) broadly oval</li> <li>1) subrectangular</li> <li>2) elongate, subparallel sided</li> <li>3) extremely elongate, subcylindrical</li> <li>4) straight anteriorly, arcuate posteriorly</li> </ul> <p>66. Metacoxal ventral surface internally:</p> <ul style="list-style-type: none"> <li>0) with long pilosity</li> <li>1) glabrous</li> </ul> <p>67. Abdominal sternite 7 medially:</p> <ul style="list-style-type: none"> <li>0) unmodified</li> <li>1) concave medially</li> <li>2) surface flat but lower than segment 6 and 8</li> <li>3) surface flat but lower than segment 6 only</li> <li>4) carinate</li> </ul> <p>68. Abdominal sternite 7 length along midline:</p> <ul style="list-style-type: none"> <li>0) shorter than segment 6</li> <li>1) subequal to segment 6</li> <li>2) longer than segment 6</li> </ul> <p>69. Male abdominal sternite 6-7 posteriorly:</p> <ul style="list-style-type: none"> <li>0) lacking dense minute punctures</li> <li>1) with dense minute punctures</li> </ul> <p>70. Pygidial oblique furrows:</p> <ul style="list-style-type: none"> <li>0) absent</li> <li>1) present</li> </ul> <p>71. Parameres in dorsal view:</p> <ul style="list-style-type: none"> <li>0) simply convex apically</li> <li>1) dentate or carinate</li> <li>2) produced into a lobate projection</li> <li>3) laterally compressed and smooth</li> <li>4) dorsoventrally compressed</li> <li>5) recurved dorsally</li> <li>6) laterally compressed and granulate</li> </ul> |
|---|--|
-



1



2



3



4



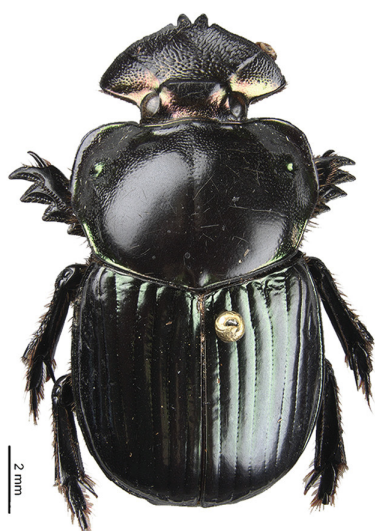
5



6

**FIGURES 1–6.** Dorsal habitus. 1. *D. bluti*, male holotype; 2. *D. carinifer*, male holotype; 3. *D. compressipennis*, male holotype; 4. *D. cribrosus*, male holotype; 5. *D. furtadoi*, male holotype; 6. *D. hirticollis*, female holotype.





7



8



9



10



11



12

**FIGURES 7–12.** Dorsal habitus. 7. *D. inflatus*, female holotype; 8. *D. pauliani*, female holotype; 9. *D. pilosissimus*, female holotype; 10. *D. renatii*, female holotype; 11. *D. aenigmaticus*, male holotype; 12. *D. amazonicus*, male holotype.



13



14



15



16



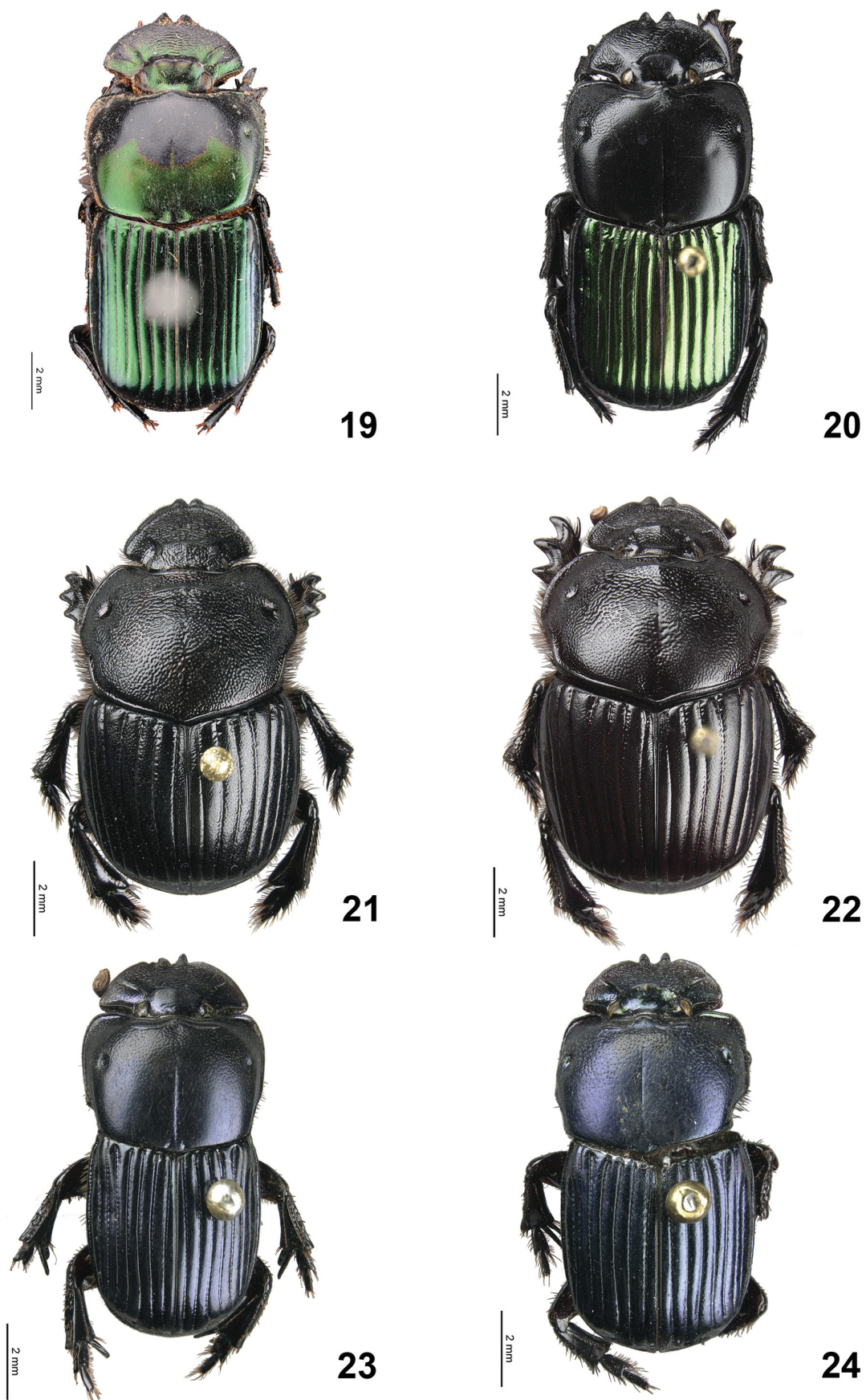
17



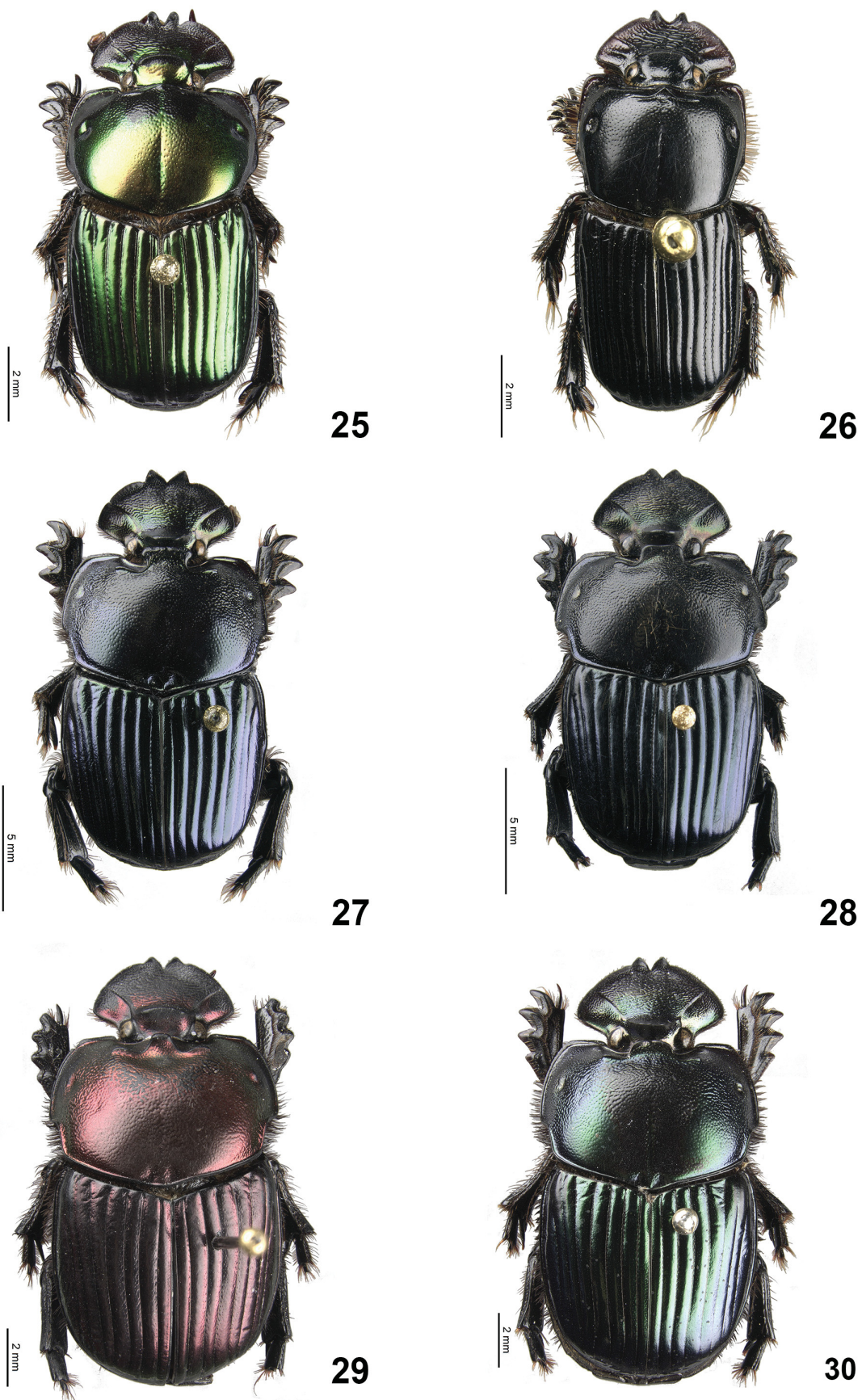
18

**FIGURES 13–18.** Dorsal habitus. 13. *D. angustulus*, male holotype; 14. *D. ater*, male neotype; 15. *D. flechtmanni*, male holotype; 16. *D. larseni*, male holotype; 17. *D. piceus*, male holotype; 18. *D. telephus*, male holotype.





**FIGURES 19–24.** Dorsal habitus. 19. *D. viridis*, female holotype; 20. *D. viridipennis*, male neotype; 21. *D. convexus*, male neotype; 22. *D. fredericki*, female holotype; 23. *D. angustipennis*, female lectotype; 24. *D. bahianus*, male lectotype.



**FIGURES 25–30.** Dorsal habitus. 25. *D. inmarginatus*, female holotype; 26. *D. nigrutilus*, male holotype; 27. *D. amyntas*, male; 28. *D. attalus*, male holotype; 29. *D. lydiae*, male holotype; 30. *D. morettoii*, male holotype.





31



32



33



34

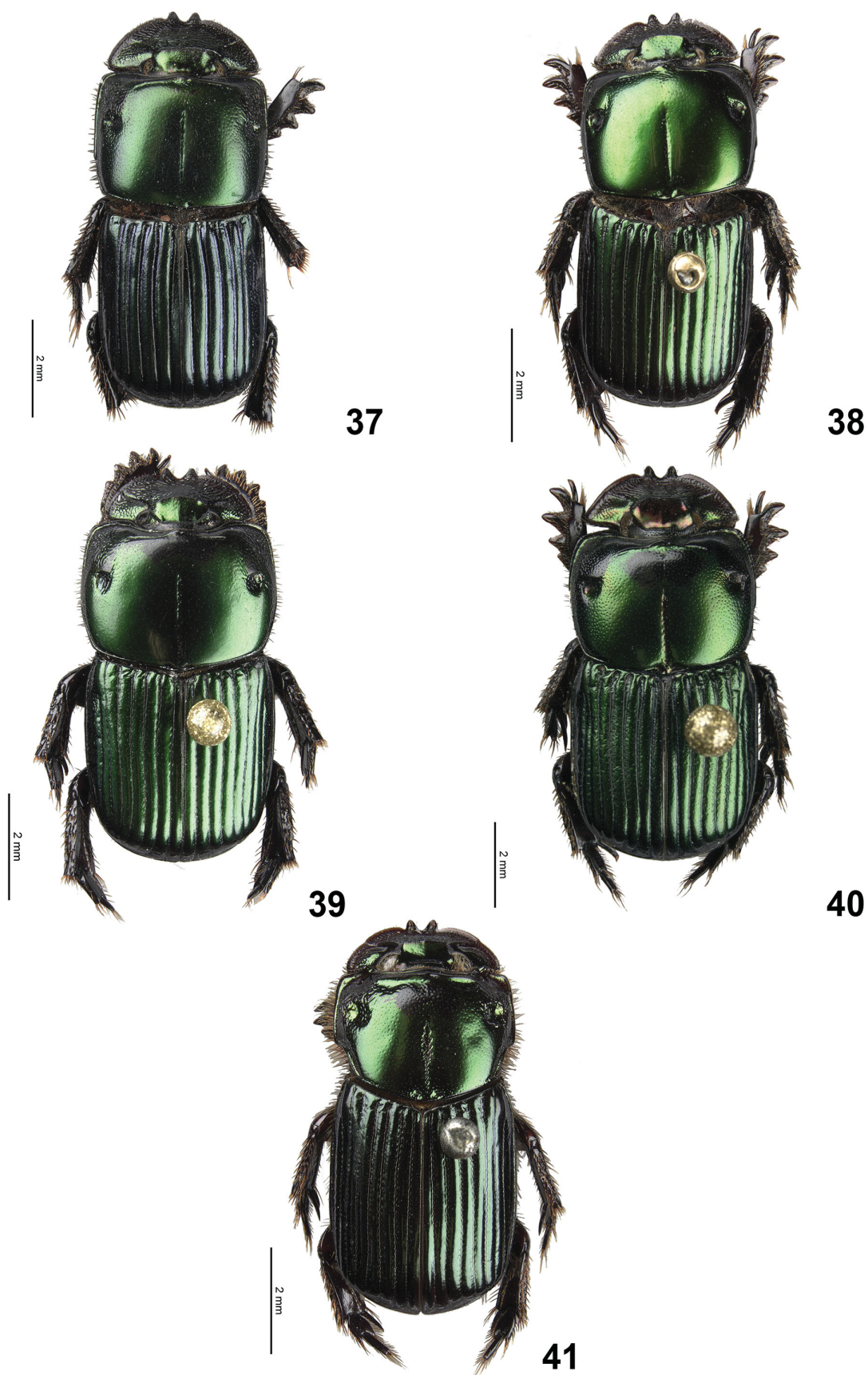


35



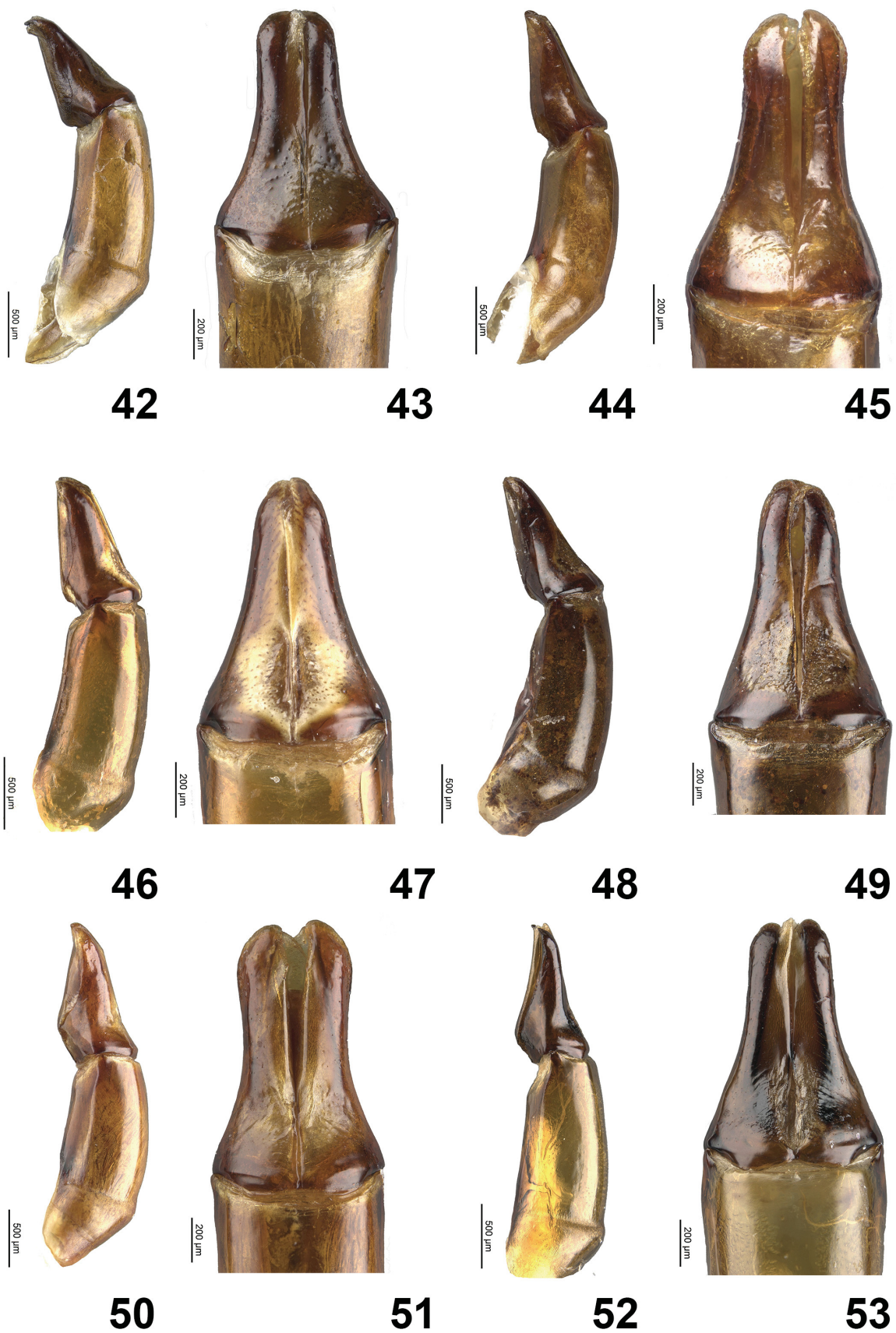
36

**FIGURES 31–36.** Dorsal habitus. 31. *D. ganglbaueri*, male holotype; 32. *D. vazdemelloi*, male holotype; 33. *D. refulgens*, male holotype; 34. *D. fractipes*, male holotype; 35. *D. fascies*, male lectotype; 36. *D. haroldi*, male lectotype.



**FIGURES 37–41.** Dorsal habitus. 37. *D. latistriatus*, male holotype; 38. *D. nitidicollis*, male lectotype; 39. *D. quadratus*, male neotype; 40. *D. similis*, male holotype; 41. *D. denticollis*, female holotype.



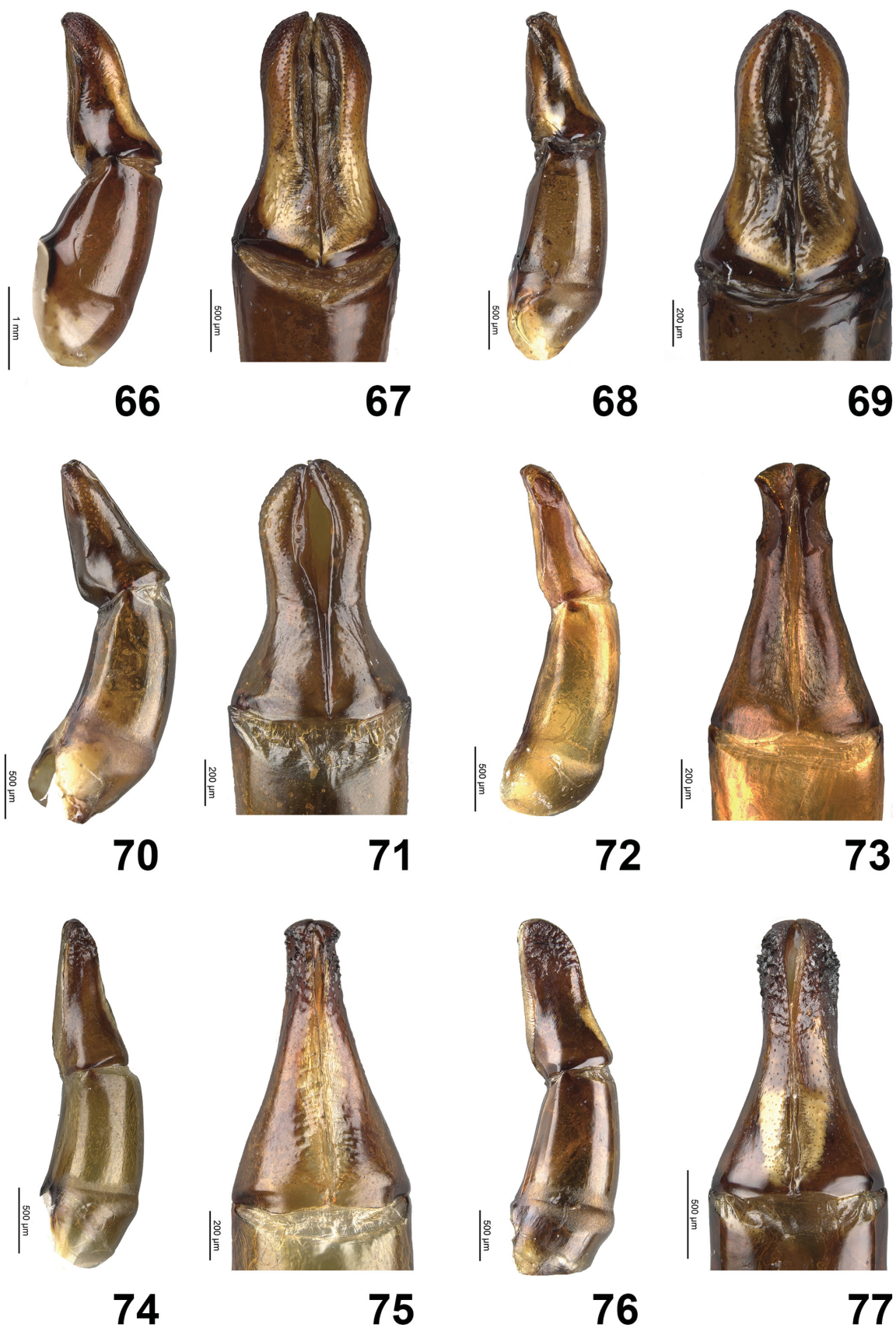


**FIGURES 42–53.** Aedeagus lateral view: 42, 44, 46, 48, 50, 52; parameres dorsal view: 43, 45, 47, 49, 51, 53. 42–43. *D. carinifer*, paratype; 44–45. *D. compressipennis*, holotype; 46–47. *D. cribrosus*, paratype; 48–49. *D. furtadoi*, holotype; 50–51. *D. hirticollis*; 52–53. *D. renatii*.

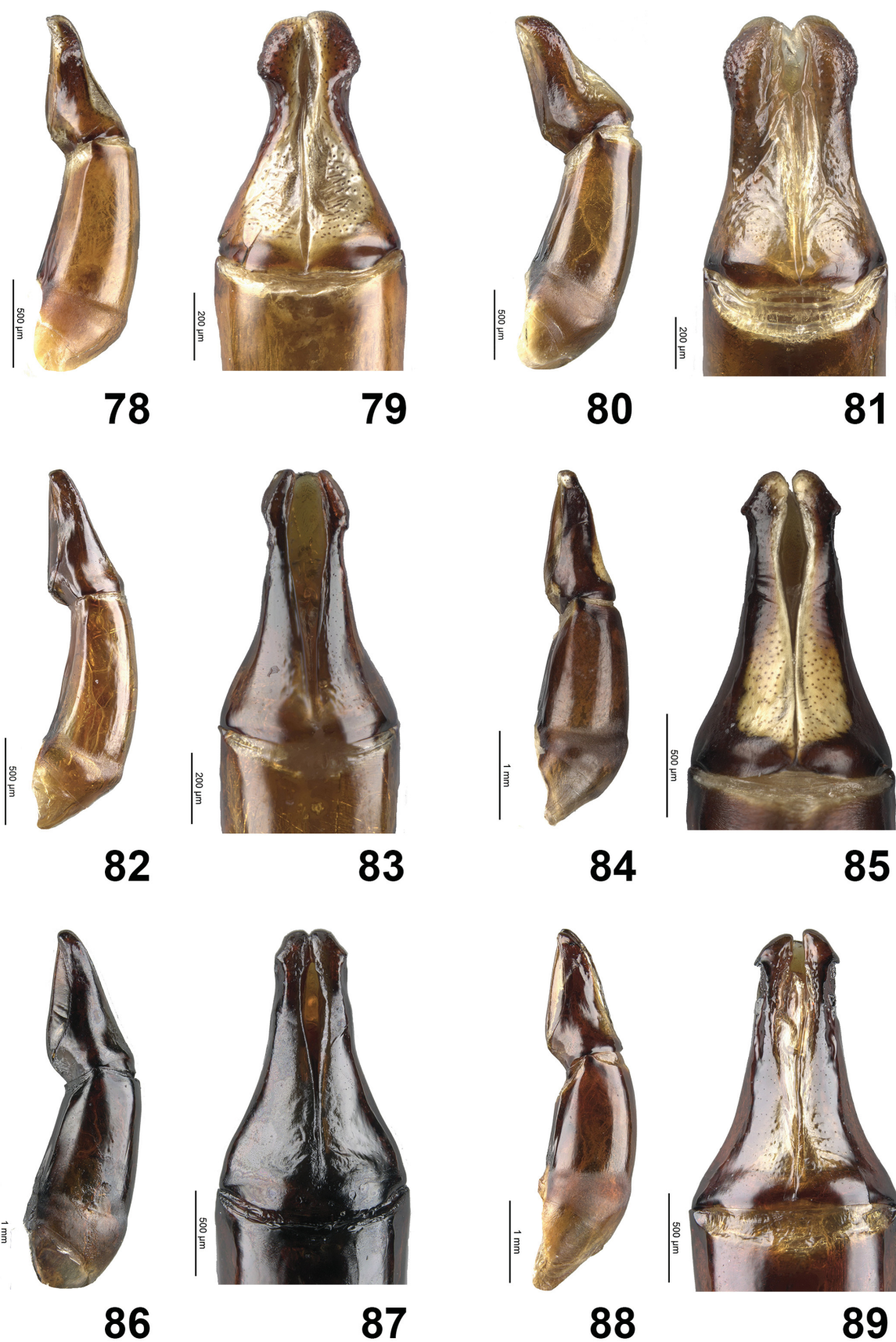


**FIGURES 54–65.** Aedeagus lateral view: 54, 56, 58, 60, 62, 64; parameres dorsal view: 55, 57, 59, 61, 63, 65. 54–55. *D. aenigmaticus*, holotype; 56–57. *D. amazonicus*, holotype; 58–59. *D. angustulus*, paratype; 60–61. *D. ater*, neotype; 62–63. *D. flechtmanni*, holotype; 64–65. *D. larseni*, holotype.



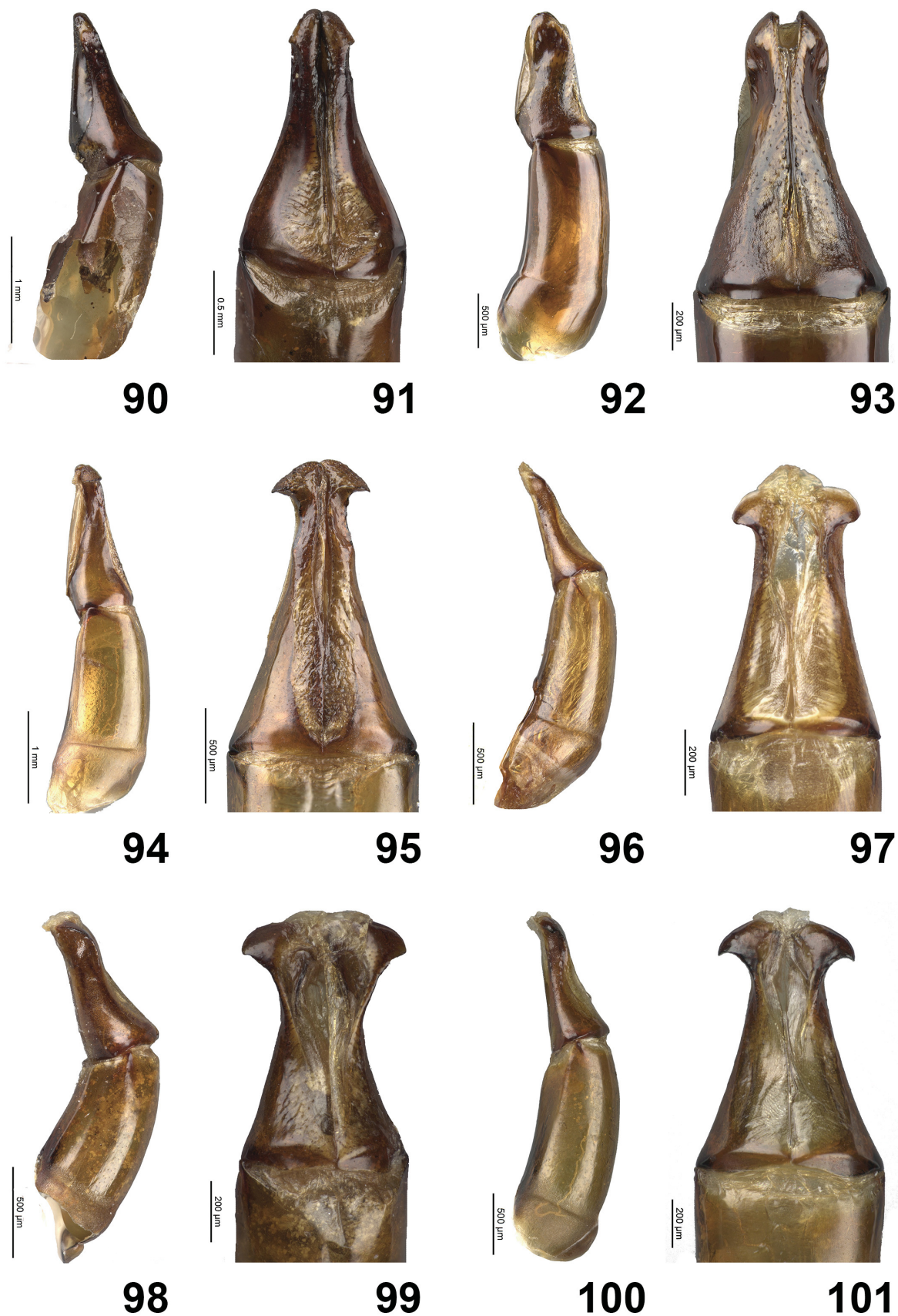


**FIGURES 66–77.** Aedeagus lateral view: 66, 68, 70, 72, 74, 76; parameres dorsal view: 67, 69, 71, 73, 75, 77. 66–67. *D. piceus*, holotype; 68–69. *D. telephus*, holotype; 70–71. *D. viridis*; 72–73. *D. viridipennis*; 74–75. *D. convexus*, neotype; 76–77. *D. fredericki*.

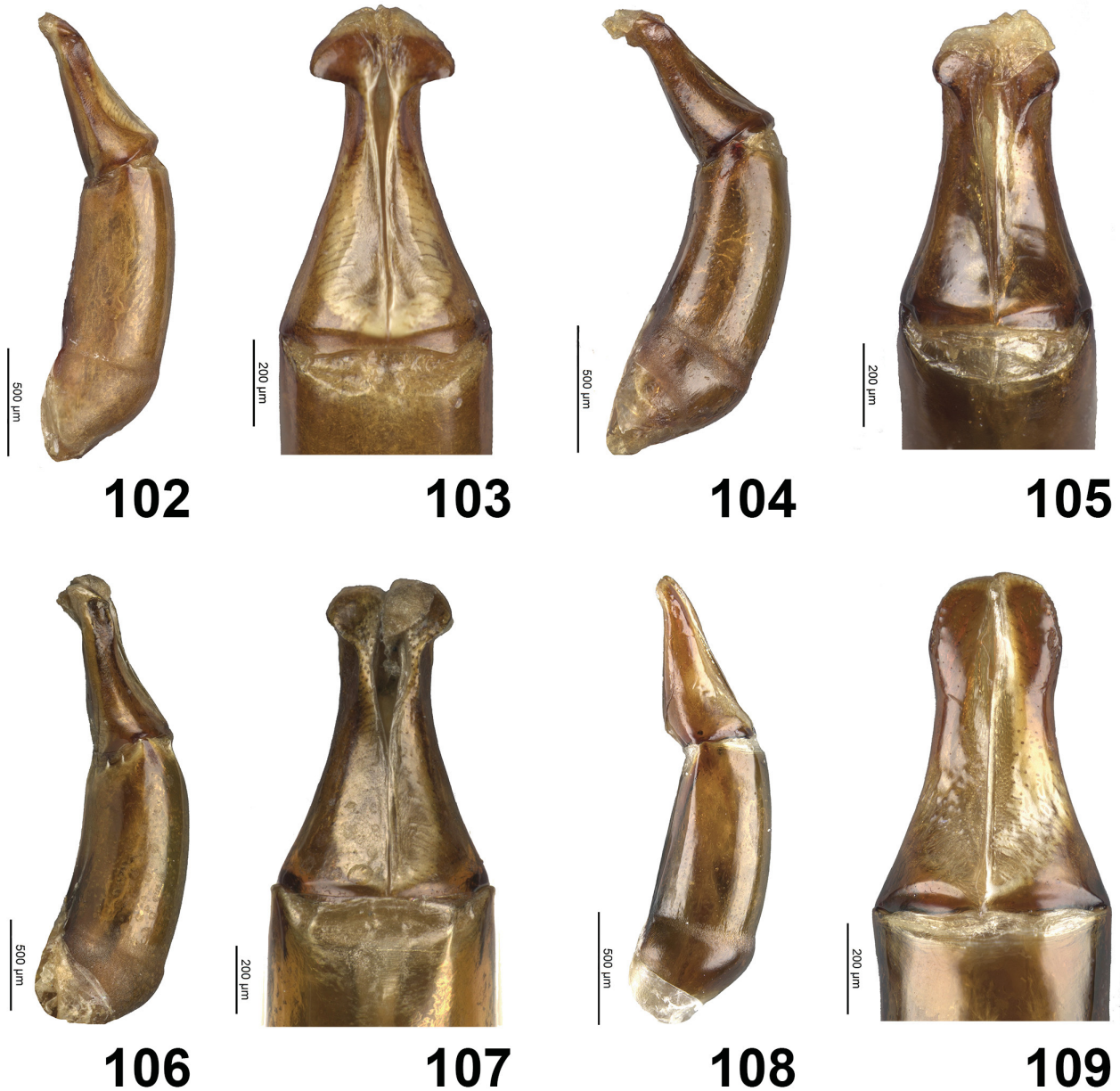


**FIGURES 78–89.** Aedeagus lateral view: 78, 80, 82, 84, 86, 88; parameres dorsal view: 79, 81, 83, 85, 87, 89. 78–79. *D. angustipennis*; 80–81. *D. bahianus*; 82–83. *D. nigrifulus*, paratype; 84–85. *D. amyntas*; 86–87. *D. attalus*; 88–89. *D. lydiae*, paratype.



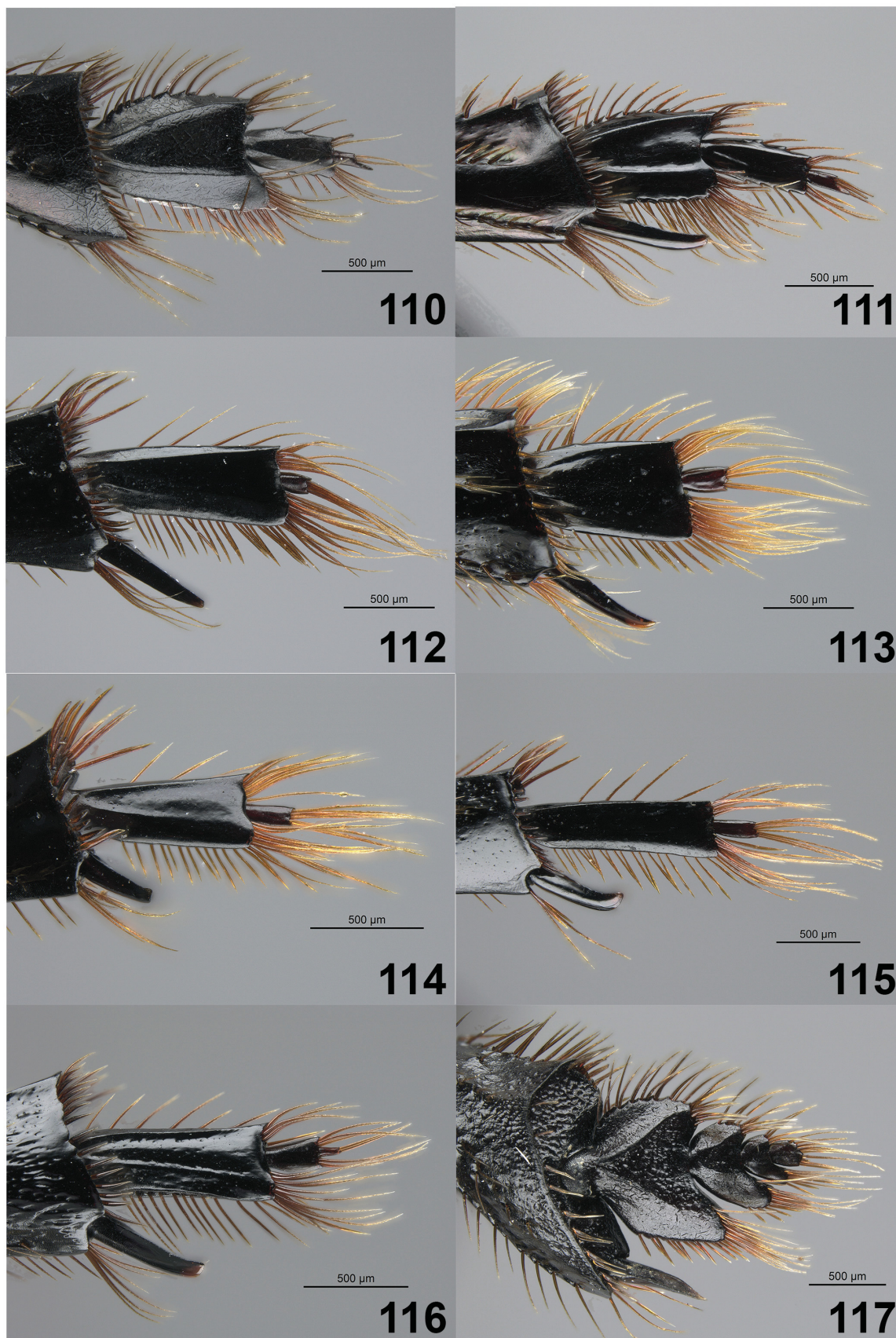


**FIGURES 90–101.** Aedeagus lateral view: 90, 92, 94, 96, 98, 100; parameres dorsal view: 91, 93, 95, 97, 99, 101. 90–91. *D. morettoii*, holotype; 92–93. *D. vazdemelloi*, paratype; 94–95. *D. fractipes*; 96–97. *D. fascies*; 98–99. *D. haroldi*; 100–101. *D. latistriatus*, holotype.



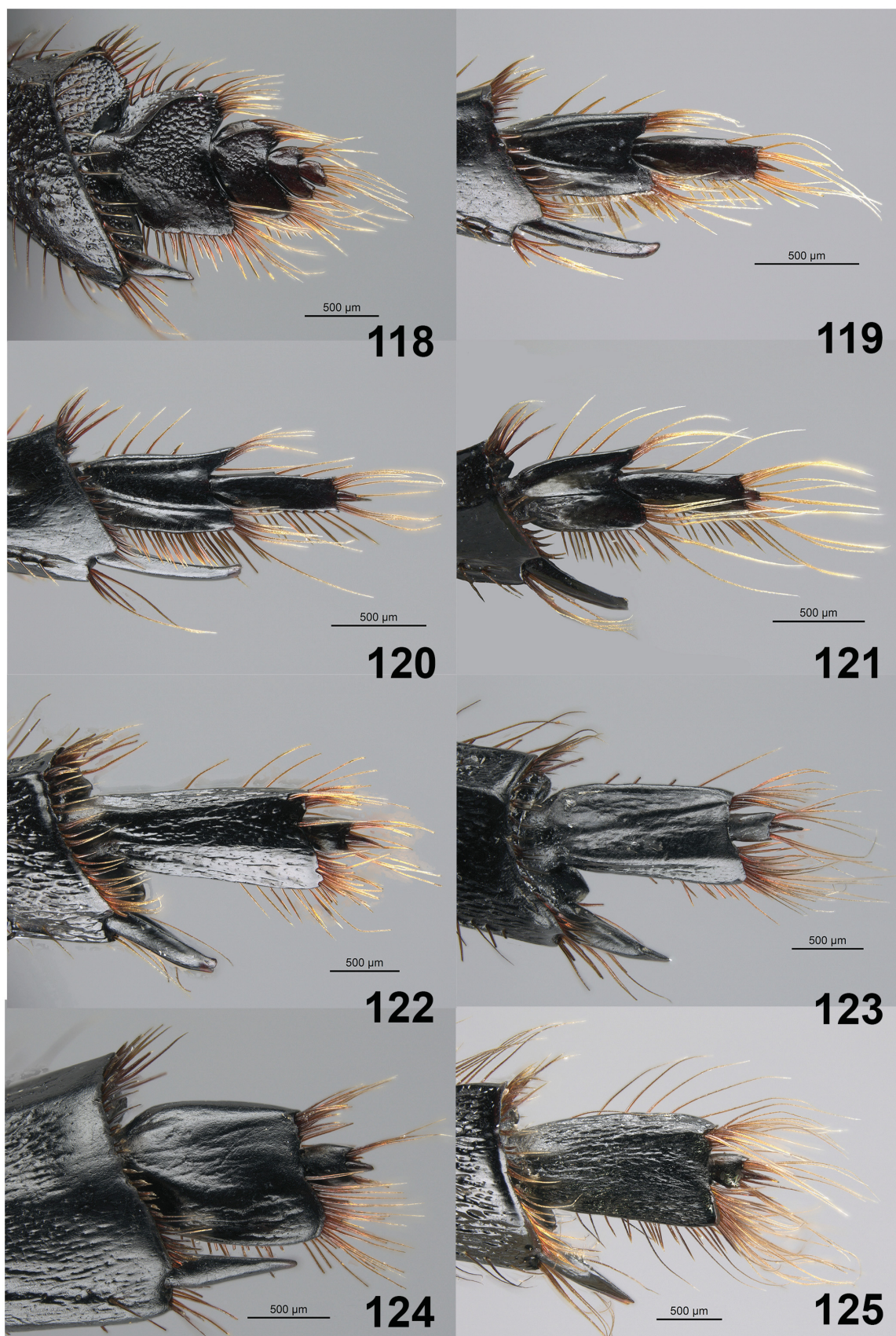
**FIGURES 102–109.** Aedeagus lateral view: 102, 104, 106, 108; parameres dorsal view: 103, 105, 107, 109. 102–103. *D. nitidicollis*, lectotype; 104–105. *D. quadratus*, neotype; 106–107. *D. similis*, holotype; 108–109. *D. denticollis*.





**FIGURES 110–117.** Metatarsus, ventral view. 110. *D. bluti*; 111. *D. carinifer*; 112. *D. aenigmaticus*; 113. *D. amazonicus*; 114. *D. angustulus*; 115. *D. viridis*; 116. *D. viridipennis*; 117. *D. convexus*.





**FIGURES 118–125.** Metatarsus, ventral view. 118. *D. fredericki*, holotype; 119. *D. angustipennis*; 120. *D. bahianus*; 121. *D. nigrifolius*, paratype; 122. *D. amyntas*; 123. *D. attalus*; 124. *D. lydiae*, paratype; 125. *D. moretto*, paratype.





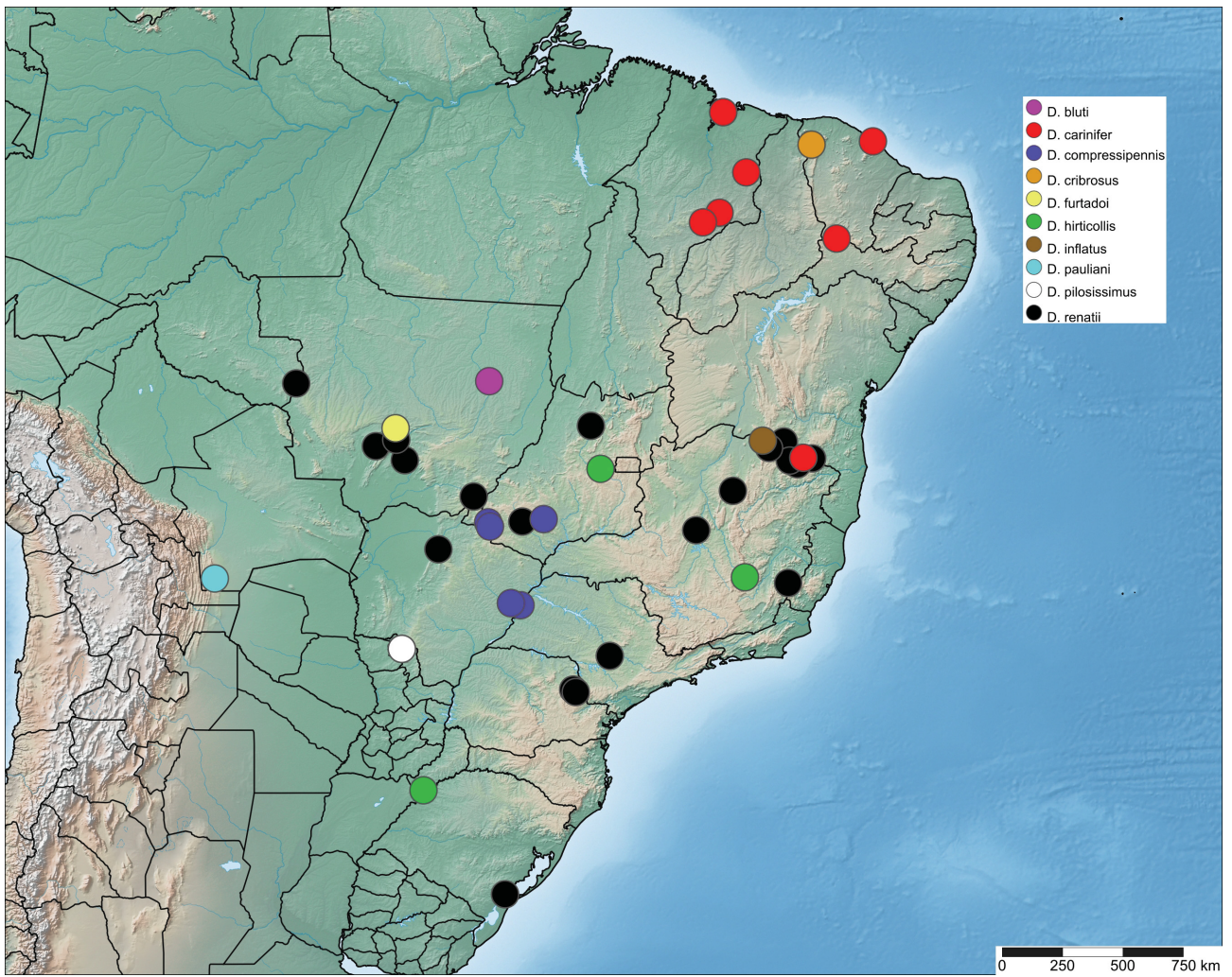
**FIGURES 126–133.** Metatarsus, ventral view. 126. *D. ganglbaueri*, holotype; 127. *D. vazdemelloi*, holotype; 128. *D. refulgens*, holotype; 129. *D. fractipes*; 130. *D. fascies*; 131. *D. nitidicollis*; 132. *D. quadratus*; 133. *D. denticollis*.





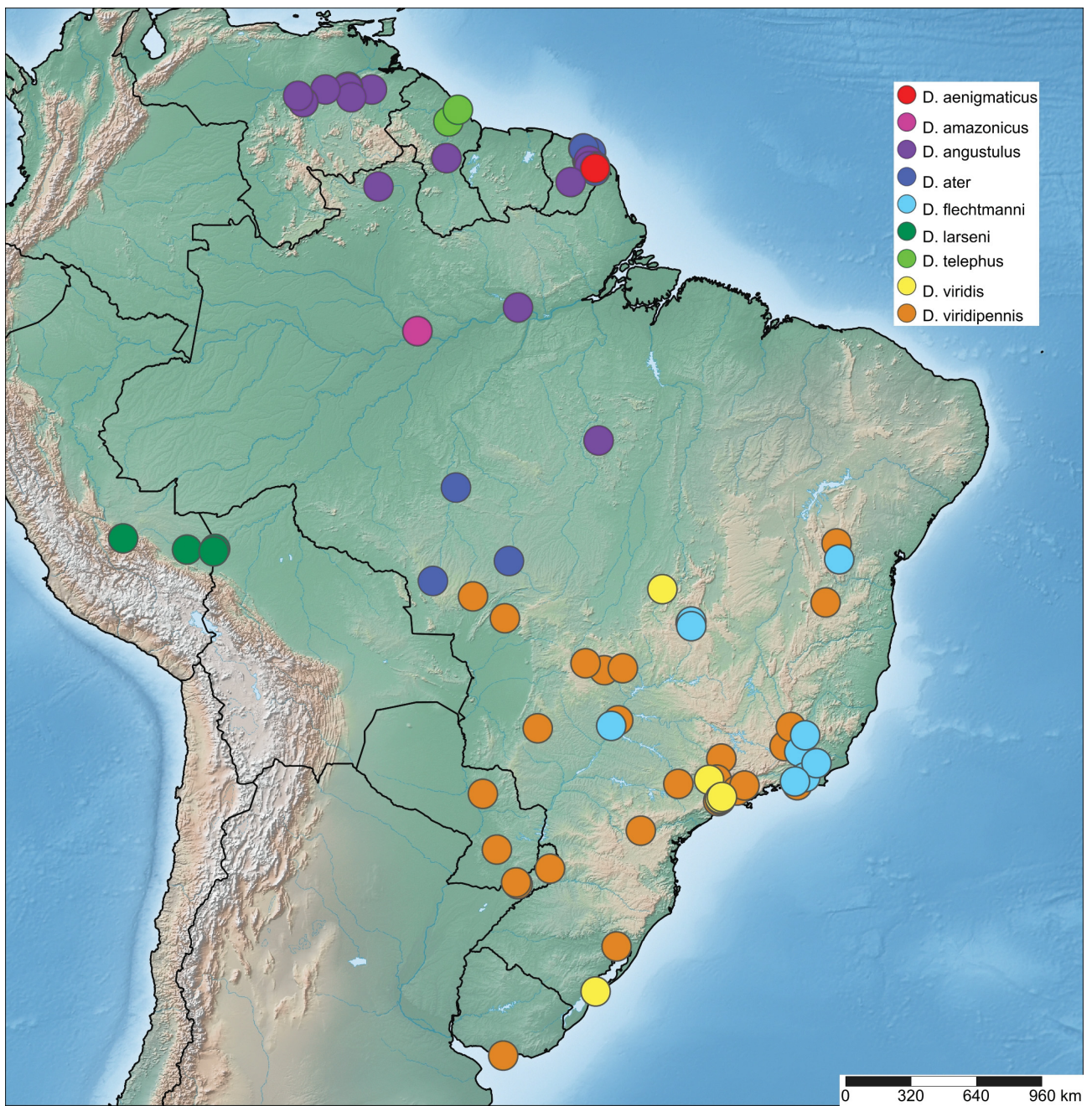
**FIGURES 134–154.** Primary type labels. 134. *D. hirticollis*; 135. *D. pauliani*; 136. *D. renatii*; 137. *D. ater*; 138. *D. piceus*; 139. *D. telephus*; 140. *D. viridis*; 141. *D. viridipennis*; 142. *D. convexus*; 143. *D. fredericki*; 144. *D. angustipennis*; 145. *D. bahianus*; 146. *D. amyntas* (= *D. attalus*); 147. *D. ganglbaueri*; 148. *D. refulgens*; 149. *D. fractipes*; 150. *D. fascies*; 151. *D. haroldi*; 152. *D. nitidicollis*; 153. *D. quadratus*; 154. *D. similis*; 155. *D. denticollis*.





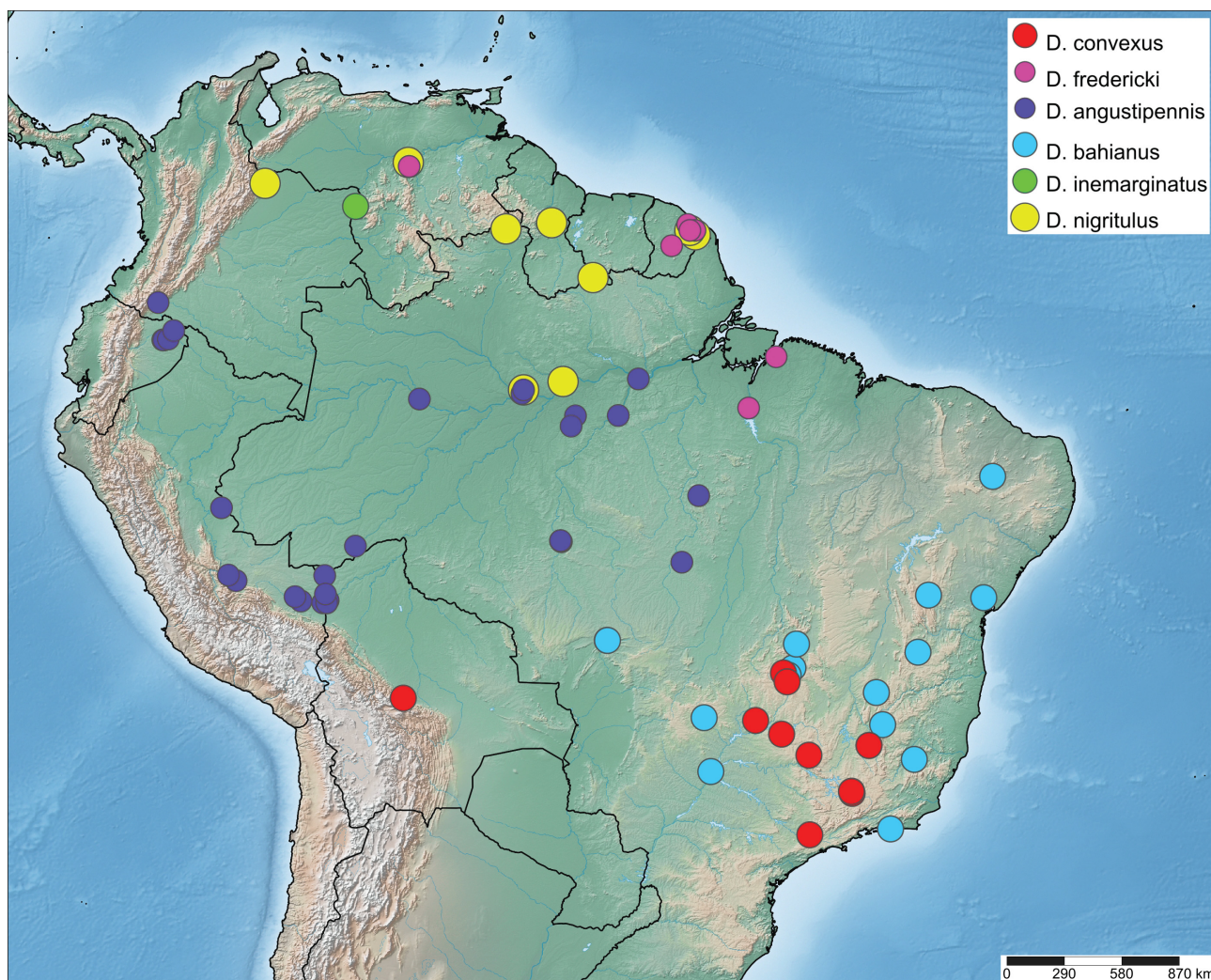
**FIGURE 156.** Known distribution of *D. bluti*, *D. carinifer*, *D. compressipennis*, *D. cribrosus*, *D. furtadoi*, *D. hirticollis*, *D. inflatus*, *D. pauliani*, *D. pilosissimus*, *D. renatii*.





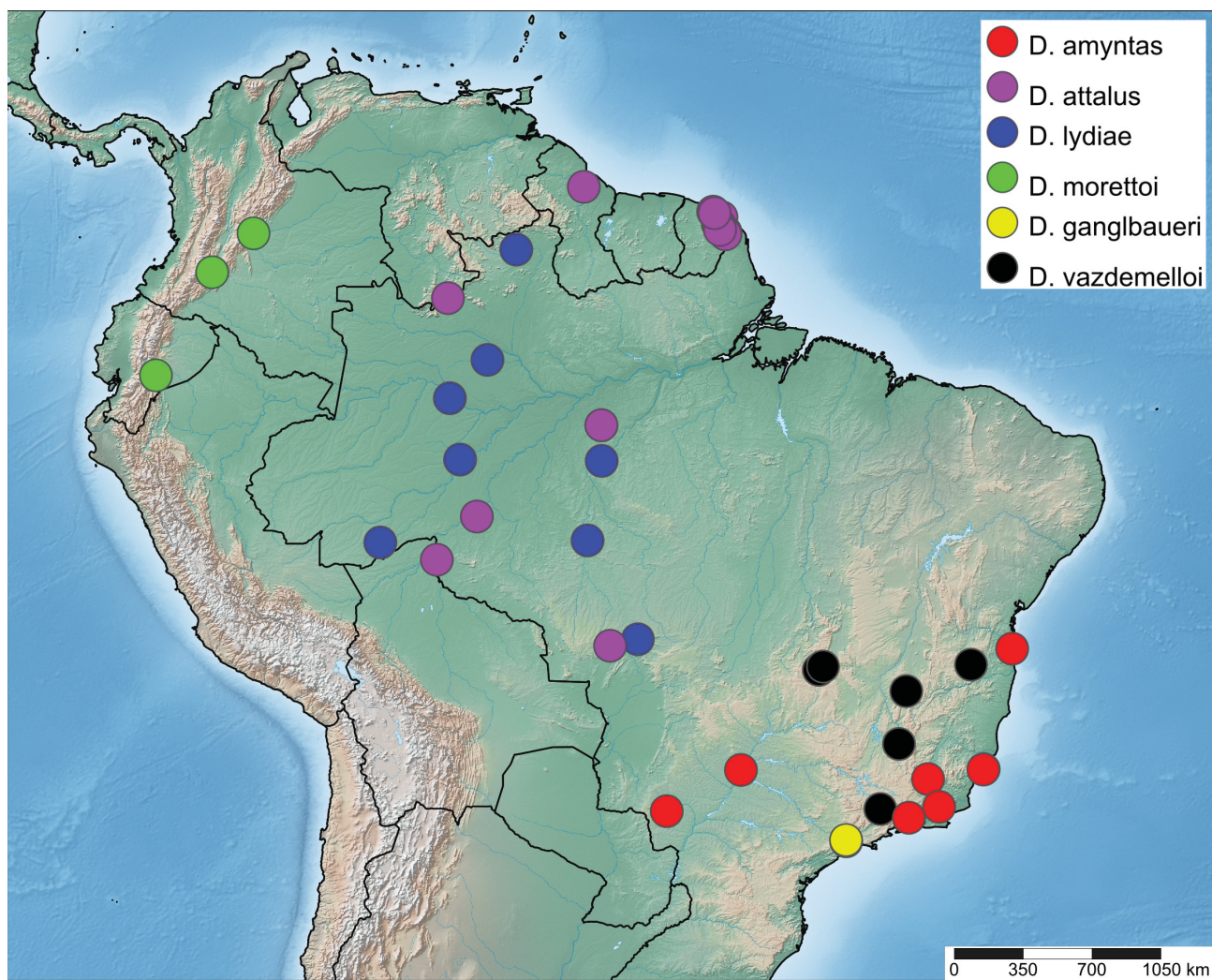
**FIGURE 157.** Known distribution of *D. aenigmaticus*, *D. amazonicus*, *D. angustulus*, *D. ater*, *D. flechtmani*, *D. larseni*, *D. telephus*, *D. viridis*, *D. viridipennis*.





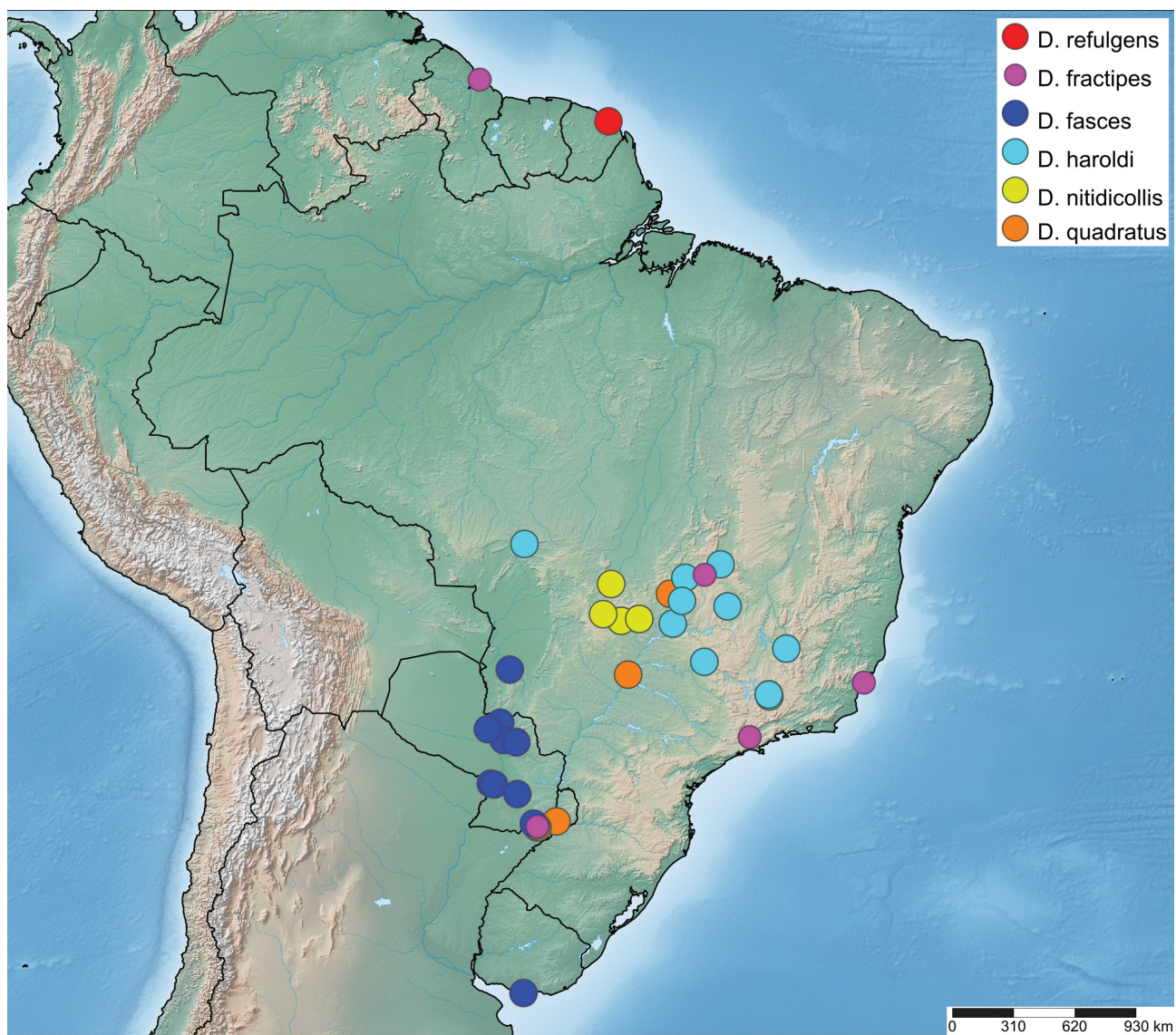
**FIGURE 158.** Known distribution of *D. convexus*, *D. fredericki*, *D. angustipennis*, *D. bahianus*, *D. inemarginatus*, *D. nigrutilus*.





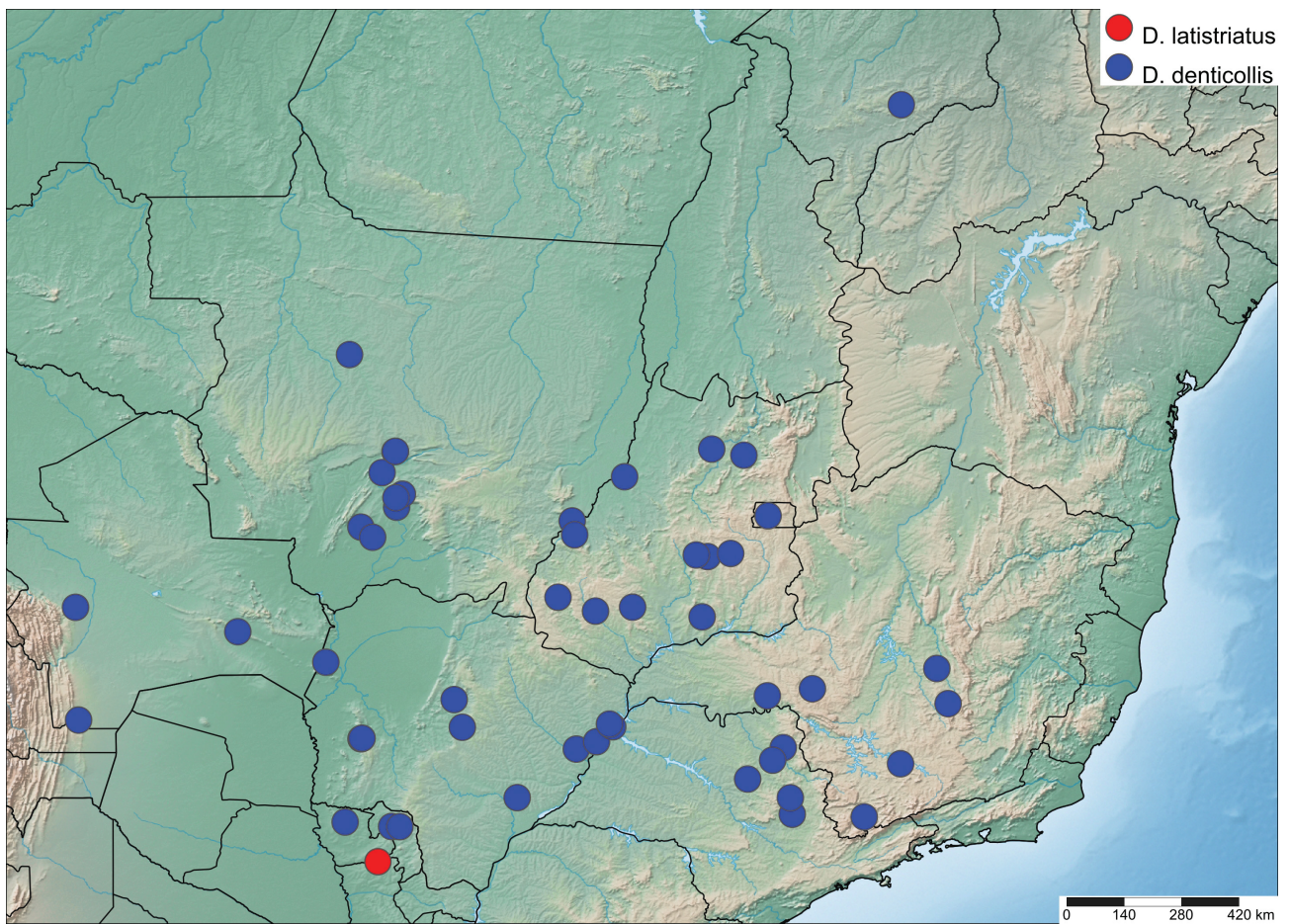
**FIGURE 159.** Known distribution of *D. amyntas*, *D. attalus*, *D. lydiae*, *D. moretto*, *D. ganglbaueri*, *D. vazdemelloi*.



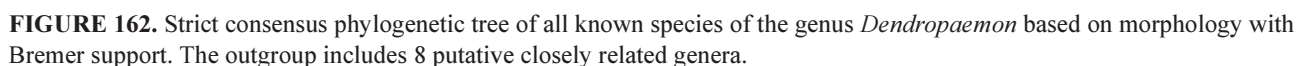


**FIGURE 160.** Known distribution of *D. refulgens*, *D. fractipes*, *D. fascies*, *D. haroldi*, *D. nitidicollis*, *D. quadratus*.





**FIGURE 161.** Known distribution of *D. latistriatus*, *D. denticollis*.





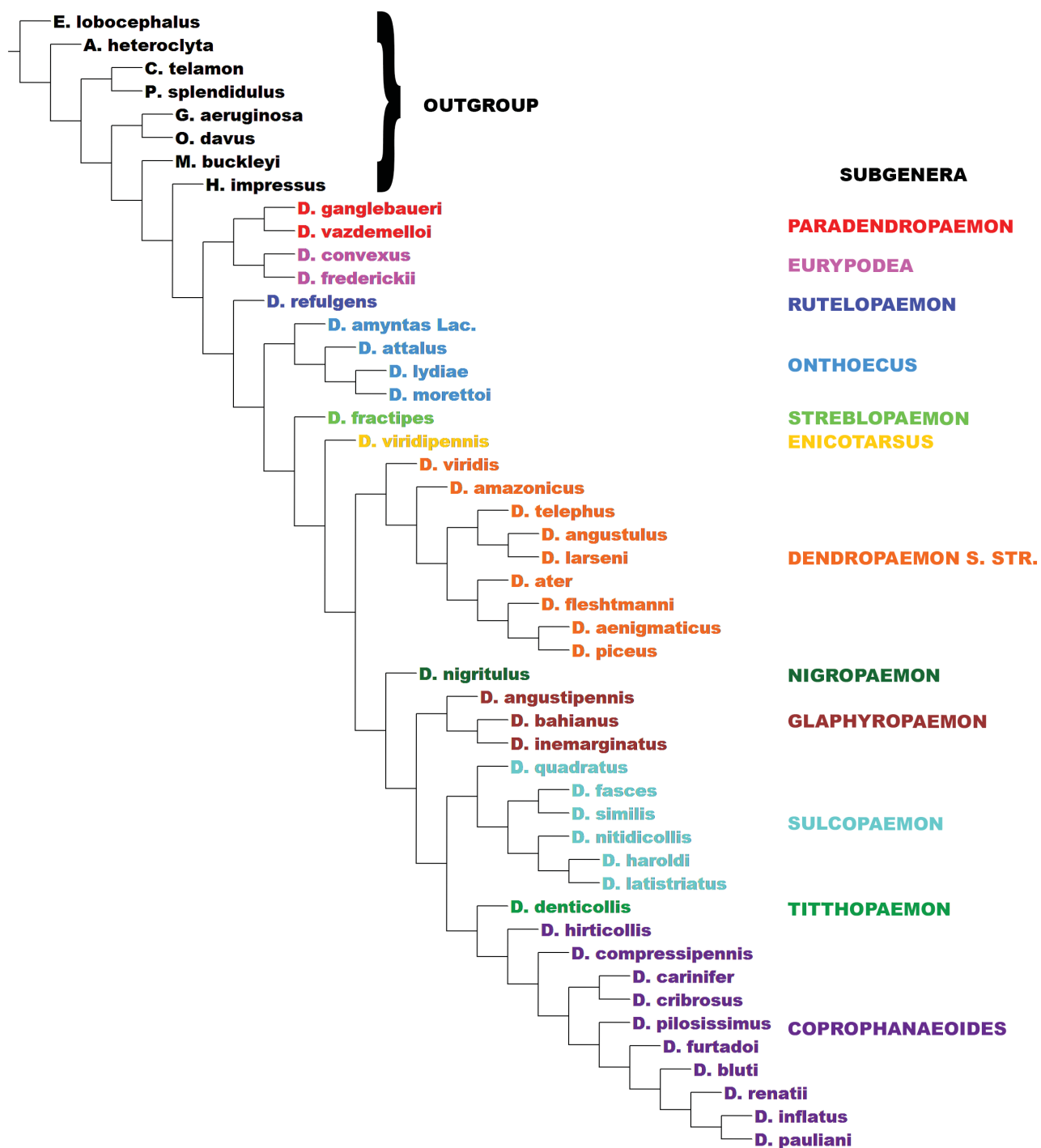
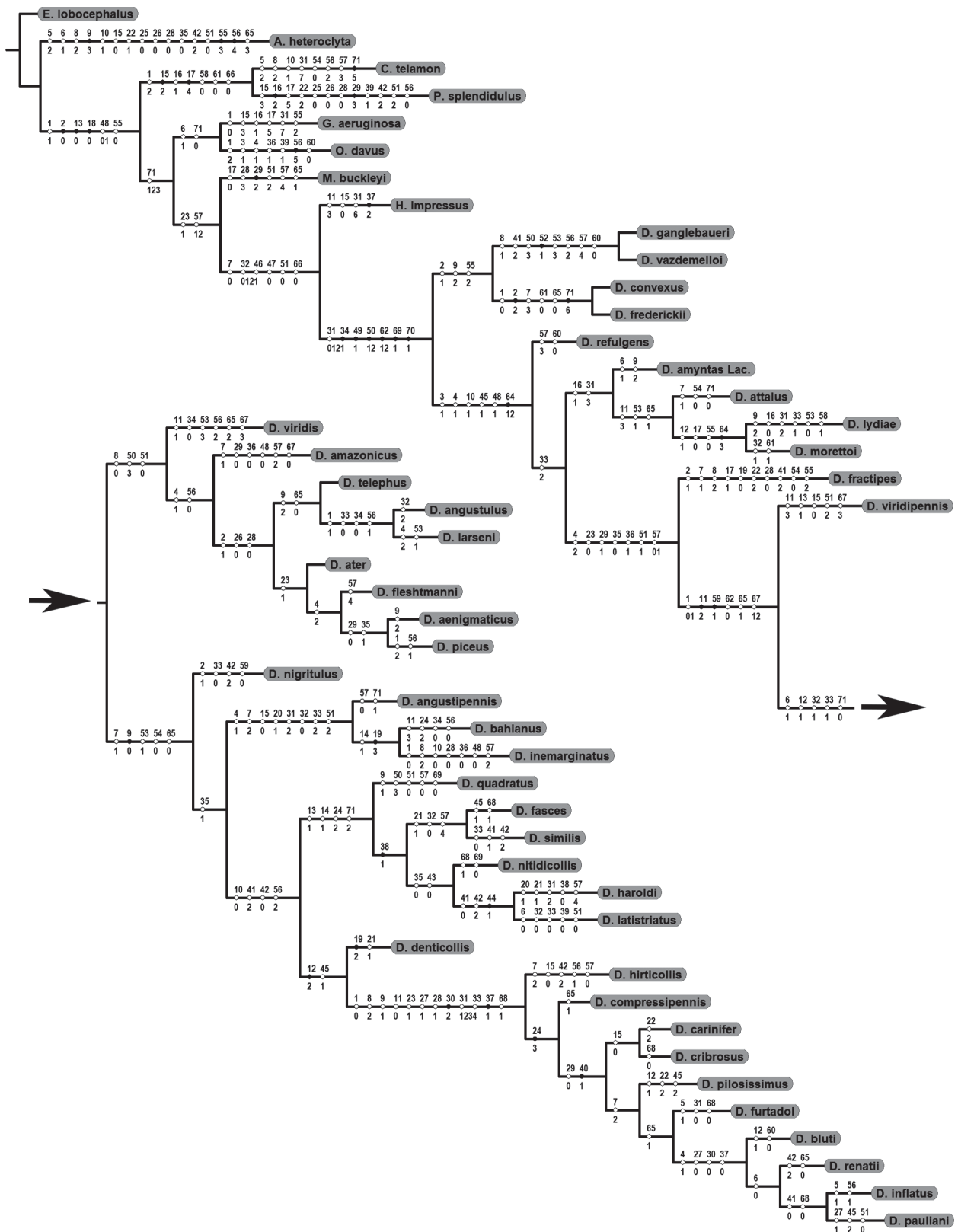


FIGURE 163. Implied weight tree showing current subgeneric organization.



**FIGURE 164.** Plotted tree showing character transformation for all known species of the genus *Dendropaemon* and the 8 outgroup taxa. Above branch numbers indicate character and below branch numbers indicate state. Solid circles show non homoplasious synapomorphies.